Original Research Article

Health and nutritional status of children enrolled with a charitable trust school in rural service area of a medical college in coastal Karnataka

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ABSTRACT

Background: Healthy children are the base for a healthy nation. Children are quite vulnerable at this growing age and hence are prone to fall victim to many diseases, thus affecting their normal growth and development. School health program was started as a total health care delivery system in our country with a purpose of addressing the health needs of children. This study was carried out in a selected school of rural Mangaluru, Karnataka to assess the health and nutritional status of the children.

Methods: A cross-sectional study was conducted during July and August 2017 among all the school children of a charitable school in a rural area of coastal Karnataka. Data regarding anthropometric measurements, refractive error, medical problems and minor ailments were collected using a predesigned health card. Data was entered in Microsoft excel spreadsheet and analysed using SPSS version 23.

Results: A total of 773 children were examined. Dental caries was the most common illness found in 29.6% of children followed by refractory errors in 10.7% of the children. About 13% were underweight and 2% were overweight for age.

Conclusions: The most common morbidities found were dental caries, pallor, refractory error and anaemia. Overweight was also seen in the children and needs to be addressed. A well implemented school health programme has the potential to provide comprehensive preventive and curative health services to school children.

Keywords: School health, Children, Rural, Health status

INTRODUCTION

School plays an important role in physical, social, mental and emotional development of children. The School Health Programme was launched in 1977 and was brought under National Health Mission in 2007 to address the health needs of school going children and adolescents in the 6-18 year age groups in the Government and Government aided schools. The programme entails biannual health screening and early management of disease, disability and common deficiency and linkages with secondary and tertiary health facilities as required.1

Children under 15 years of age comprise 35.3% of the total population of India. The total child population in the age group (5-14 years) is 259.64 million. School health programme has developed from the narrower concept of medical examination of children to the present day broader concept of comprehensive care of the health and wellbeing of school children throughout their school years addressing both physical and mental aspects of their health and providing nutritional support and counselling.2

While the health problems of school children vary from one place to another, surveys carried out in India indicate that malnutrition, infectious diseases, intestinal parasites,
Weight was recorded using standard weighing scale, after adjusting it to zero. Weight was recorded to the nearest 100 gms. The BMI was calculated as the weight (in kilograms) divided by the square of their height (in meters). World Health Organization BMI for age graphs were used to classify a child as normal, underweight and overweight.

General examination included general appearance of the children, gait, pallor, icterus, cyanosis, clubbing and lymphadenopathy. An ear examination and dental examination were done followed by examination of the respiratory, cardiovascular and gastrointestinal systems. Visual acuity was assessed using Snellens’ chart for far vision and Jaegers’ chart for near vision.

Operational definitions

- **Pallor**: Colour of the anterior rim of the lower palpebral conjunctiva should be same as that of the posterior palpeal rim when examined in sunlight.
- **Icterus**: Yellowish discoloration of sclera under sunlight.
- **Cyanosis**: Bluish discoloration of mucous membranes and/or skin.
- **Clubbing**: Bulbous enlargement of the ends of one or more fingers or toes.
- **Lymphadenopathy**: Any abnormally enlarged lymph node, with or without signs of inflammation.
- **Refractory error**: Visual acuity <6/18 and equal to or better than 3/60 in the better eye with best correction was taken as diminution of vision for referral.

Statistical analysis

Data was entered in Microsoft excel spreadsheet and analysed using Statistical Package for Social Sciences (SPSS) version 23 software. Chi square test was used to find any significant association between different variables. p<0.05 was considered as statistically significant.

RESULTS

A total of 773 students were examined. Among them, 423 (54.6%) were males and 351 (45.4%) were females. 397 students (51%) were aged 10 years and below.

The most common ailments seen among the school children are as shown in Table 1. Dental caries (29.6%) was most common ailment followed by anaemia (13.3%) and refractive errors (10.7%). Children aged more than 10 years were found to have a significant higher prevalence of anaemia (p=0.016) and refractive errors (p=0.019).

It was observed in our study that 103 children (13.3%) were underweight (Figure 1).
Table 1: Age wise distribution of common ailments among school children (n=773) of a charitable trust school in rural service area of a medical college, Mangaluru (2017).

<table>
<thead>
<tr>
<th>Common ailments</th>
<th>&lt;10 years (%)</th>
<th>&gt;10 years (%)</th>
<th>Total (%)</th>
<th>P value*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dental caries</td>
<td>120 (31.9)</td>
<td>109 (29.0)</td>
<td>229 (29.6)</td>
<td>0.736</td>
</tr>
<tr>
<td>Anaemia</td>
<td>40 (10.6)</td>
<td>64 (16.1)</td>
<td>104 (13.3)</td>
<td>0.016</td>
</tr>
<tr>
<td>Refractive errors</td>
<td>31 (8.2)</td>
<td>52 (13.1)</td>
<td>83 (10.7)</td>
<td>0.019</td>
</tr>
<tr>
<td>Wax in the ears</td>
<td>39 (10.4)</td>
<td>39 (9.8)</td>
<td>78 (10.1)</td>
<td>0.447</td>
</tr>
<tr>
<td>Skin ailments</td>
<td>20 (5.3)</td>
<td>34 (8.6)</td>
<td>54 (7.0)</td>
<td>0.051</td>
</tr>
<tr>
<td>Upper respiratory infections</td>
<td>19 (5.1)</td>
<td>28 (7.1)</td>
<td>47 (6.1)</td>
<td>0.156</td>
</tr>
<tr>
<td>Gastrointestinal ailments</td>
<td>12 (3.2)</td>
<td>22 (5.5)</td>
<td>34 (4.4)</td>
<td>0.078</td>
</tr>
</tbody>
</table>

*p value of <0.05 is considered statistically significant

Figure 1: Nutritional status of school children (n=773) as per body mass index (BMI).

DISCUSSION

Poor health can have a detrimental effect on children’s performance in school and their success in later life. Children who suffer from poor health are more likely to have more restricted-activity days including missing school than those who do not. School is considered as place for learning where children learn not only subjective knowledge but can also learn life style practices and health seeking behaviour. School Health Program is seen as an important programme for providing preventive, promotive and curative health services to the school children in particular and the population in general.

In the present study (Table 1), dental caries was the most common morbidity, affecting 29.6% of children. This finding is similar to the study by Dambhare et al in Sewagram Maharashtra (35.3%) and Panda et al from Ludhiana who reported that 23.2% suffered from dental caries. This finding from our study adds to the fact that there is a need to improve oral health among the school-going children which can be one of the components to stress upon in the health education programmes.

Jain and Jain had reported anaemia in 42% of school children while Panda et al and Dambhare et al reported anaemia (clinical pallor) in 26% and 28.45% respectively, which is higher than the finding of 13.3% from the present study. This may be due to better general nutritional status among the children studying in this trust school and the demographics of the children. Anaemia was found significantly higher in the adolescent age group (>10 years) and prevalence was more among girls (19.7%) than boys (8.3%). Emphasis must be given on improving iron and folic acid supplementation to adolescents and girls in particular.

Refractory error in the present study was found in 10.7% of the children whereas Panda et al reported only 5.6% of refractory error. This study also found that refractory error increases with age among school children. This highlights the need for early detection and correction of refractive errors among school children with establishing a referral mechanism for treatment.

The present study showed that 85.1% had normal BMI according to WHO BMI chart for children. This was in total contrast to the study by Navaneethan et al in Tamil Nadu which had reported 83% as underweight and 16% as normal. A comparatively lower prevalence of under nutrition (13.3%) was found in our study than that reported by Kulkarni et al (43.32%) from a study conducted in government schools in rural coastal areas of Karnataka. However, the study had reported similar number of overweight children (3.65%) as in our study (2%). Overweight/Obesity among school children is an emerging problem that needs preventive and educational measures regarding nutritional practices to help prevent morbidities in adult life.

CONCLUSION

According to the present study, dental caries was the most common ailment that has to be managed by proper referral and promoting dental hygiene. Another area of concern is anaemia where nutritional supplementation and nutrition education has a major role to play. Further, the children identified with refractive errors need further specialist consultation. BMI calculation showed that overweight is emerging as a problem of concern that if not addressed, can lead to various lifestyle diseases later.
in life. Thus health education regarding diet and life style for school children is the need of the hour.

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