# Health status of school children of costal areas of rural Tamil Nadu (India) 

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#### Abstract

Background: School health programme is the important branch of community health, and economical \& powerful means of raising community health of future generations.


Objectives: To assess the health status of school children in coastal area and various socioeconomic factors.

Methodology: This was a cross sectional study.
Results: Majority of children $61 \%$ (806) between 3-10 years of age and near equal in both sex, according to religion majority of them were Hindu $68 \%$ (906) followed by Muslims 30.58\% (408). Majority of children $66.5 \%$ (887) were studying in government school, in private school male children 37.54 \% (250) were higher than female 29.50 \% (197). During the survey common complaint was upper respiratory tract infection $40 \%(531)$ followed by fever $33.40 \%$ (445). Vitamin A deficiency were common 5.2 \% (70) among school children followed by Vitamin C 4.6 \% (62) and Vitamin B 4.4 \% (59). Percentage of underweight was higher in Govt. School children $81 \%$ in compare to private school children $67.56 \%$ in contrast over weight percentage was higher in private school $9.4 \%$ in compare to Govt. School $2.25 \%$. Most common problem among students were dental caries $44.3 \%$ (591) followed by respiratory and ear problems $23.40 \%$ ( 312 ) and $17.90 \%$ (239) respectively.
$8.80 \%$ of students had refractive error in the time of survey. Diarrhoea and respiratory infection were significantly higher among government school children in compare to private school, vitamin A; B and D were significantly higher among female students in compare to male.

Conclusion: In the present study observed that preference was given to MALE CHILD to study in private SCHOOL, upper respiratory tract infection common among school children, Underweight common in government schools than private school, overweight common in private schools, personal hygiene is poor among government school, caries commoner in
government schools than private. On the basis of present study finding further study to be planned with laboratory investigation support to further confirmation and diagnosis.

Key words: Health Status, Rural, School Children

## Introduction

School health programme is the important branch of community health, and economical \& powerful means of raising community health of future generations. School health programme started as medical examination and presently working as a comprehensive health care. Whereas there are concerted efforts to provide care to the under six year old children through various national programme, like maternal and child health programmes (e.g., ICDS, RCH programmes), the 5-16 years age group remains a neglected lot. The 2001 census shows that $21 \%$ of the population of India comprises of children aged 5-14 years. ${ }^{1}$ School children constitute a large pool of children of this age group. The beginning of school health services in India dates back to 1909 when, for the first time medical examination of school children was carried out in Baroda city ${ }^{2}$. Since then, various types of government sponsored school health programmes have been launched from time to time, but progress and achievements are very slow and incomplete and very often limited to the urban and few favored schools. In addition, school health services are irregular and intermittent, without follow-up or accountability. The 516 years old children are on the threshold of adulthood. If they are to reach adulthood in a healthy state, then it is necessary to provide targeted and concerted services to improve their health status.

## Objectives

1) To assess the health status of school children in coastal area of Rural Tamil Nadu.
2) To compare the health status of school children between private \& government school and various socioeconomic factors.

## Methodology

The cross sectional study was carried out in the schools of rural health centre area of annechikuppam Tamilnadu. Informed consent was taken from schools authority and parents. We had covered total six schools, 4 from Government side and 2 from privates, their name as follows a) Govt. High School Koonimedu b) Govt. Primary School c) Government Primary School Koonimedukuppam d) Govt. Primary School, Majakuppam 2 from Private 1) Al-Rasheed, School 2) ALM School by simple random sampling method. The study population was 1334 school children's of both sexes, the period of study was 2 months, data collection was done with the help of predesigned and pretested proforma for the following variables, 1) Identification data- age, sex, religion, social class 2) Anthropometric parameters: Height recorded to nearest 0.1 cm with stadiometer, weight to nearest 100 gram with solar weighing machine ${ }^{8}$ and categorized for malnutrition according to Gomez's classification ${ }^{2}$
weight for age). General and physical examinations were done for personal hygiene, skin problems, congenital defect and nutritional deficiency. Refraction status of eye assess by Snell en's chart. Sickness was defined as any child between 0-5 years with fever (lasting at least two days), or acute respiratory infection or earache, diarrhoea (3 episodes of watery loose stool for at least one day). Data analysis was done with the help of statistician.

## Results

Majority of children $61 \%$ (806) between 3-10 years of age and near equal in both sex, according to religion majority of them were Hindu $68 \%(906)$ followed by Muslims $30.58 \%(408)$. Majority of children $66.5 \%$ (887) were studying in government school, in private school male children $37.54 \%(250)$ were higher than female $29.50 \%$ (197). During the survey common complaint was upper respiratory tract infection $40 \%$ (531) followed by fever $33.40 \%$ ( 445 ). Vitamin A deficiency were common $5.2 \%(70)$ among school children followed by Vitamin C $4.6 \%$ (62) and Vitamin B $4.4 \%$ (59). Percentage of underweight was higher in Govt. School children 81\% in compare to private school children $67.56 \%$, in contrast over weight percentage was higher in private school $9.4 \%$ in compare to Govt. School $2.25 \%$. Most common problem among students were dental caries $44.3 \%$ (591) followed by respiratory and ear problems $23.40 \%$ (312) and $17.90 \%$ (239) respectively.
$8.80 \%$ of students had refractive error in the time of survey. Diarrhoea and respiratory infection were significantly higher among government school children in compare to private school, vitamin A; B and D were significantly higher among female students in compare to male.

## Discussion

Over all underweight children in present study were $76 \%$, the study conducted by Awate R.V.et all malnutrition was $47.42 \%$, nutritional deficiencies among rural primary school children in Sewagram, Maharashtra $52.2 \%$ malnourished children were reported, similar finding was also reported by Dr.Panda.P.et al - Health status of school children, Ludhiana city. Micronutrients deficiencies, vitamin A 5.2\% followed by Vitamins, B and D. Pallor 17.84\%, Anemia 32.47\% and Vitamin A 9.8\%, similar finding was also reported by Awate R.V.et al and Panda. et al anemia was $26 \%$ Health status of school children, Ludhiana city. The prevalence of dental caries in present study was $44.3 \%$, study by Panda et al, Rao .S.et al $16.6 \%$ and Sarvanan S et al $44.4 \%$ in 5 years age group \& $22.3 \%$ in 12 years age group.ENT problems were $19.7 \%$ and others study $15.8 \%$ by Panda et al. The prevalence of ARI was reported $23 \%$ in present study and $10.66 \%$ by Awate.R.V. et al. Skin condition: $16.5 \%$ in present study in contrast $1.1 \%$ in Panda.P. et al and $38.8 \%$ by Dorga.S ,skin diseases in school children ( $12.58 \%$ ) in North India. Passing worms in stool $9.7 \%$ in the present study but little higher $30.4 \%$ in Awate .R.V.et al difference may be due to study settings. Refractive errors $9 \%$, in present study in contrast lower in $4.1 \%$ myopia Dandona.R et al refractive errors in rural India in AP.

## Conclusion

In the present study observed that preference was given to MALE CHILD to study in private SCHOOL, upper respiratory tract infection common among school children, Underweight common in government schools than private school, overweight common in private schools, personal hygiene is poor among government school, caries commoner in government schools than private. On the basis of present study finding further study to be planned with laboratory investigation support to further confirmation and diagnosis.

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Conflict of Interest: None declared.

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Table 1: Distribution of the school children according to socio-demographic profile

| SERIAL NUMBER | CATEGORY | NUMBER | PERCENTAGE |
| :---: | :---: | :---: | :---: |
| 1 | $\begin{gathered} \hline \text { AGE INYRS } \\ 3-6 \end{gathered}$ | 353 | 26\% |
|  | 7-10 | 453 | 34\% |
|  | 11-14 | 467 | 35\% |
|  | 15-18 | 63 | 5\% |
| 2 | SEX <br> MALE | 666 | 49.90\% |
|  | FEMALE | 668 | 51.10\% |
| 3 | RELEGION <br> HINDU | 906 | 68\% |
|  | MUSLIM | 408 | 30.58\% |
|  | CHRISTIAN | 19 | 1\% |
|  | OTHER | 01 | 0.074\% |

Table 2: Distribution of children according to type of school

| S.No | Type | No | Percentage |
| :---: | :--- | :--- | :--- |
| 1 | Private | 447 | $33.5 \%$ |
| 2 | Government | 887 | $66.5 \%$ |
| TOTAL |  | 1334 | 100 |

Table showing that two third of children's were studying in private schools in studied area.

Table 3: Distribution of school children as per gender (govt. \& private schools)

| Category | Males <br> No. | Percentage | Females <br> No. | Percentage |
| :--- | :--- | :--- | :--- | :--- |
| Govt. | 416 | $62.46 \%$ | 471 | $70.50 \%$ |
| Private | 250 | 37.54 | 197 | $29.50 \%$ |
| Total | 666 | 100 | 668 | 100 |

Table showing that majority of children were studying in Government schools in both sex in studied areas, in private schools percentage of boys( $38 \%$ ) were higher than girls $(29 \%)$.

Table 4: Distribution of children according to their weight for age

| So. No. | Nutritional status | No. of Students | Percentage |
| :--- | :--- | :--- | :--- |
| 1 | Under Weight | 1021 | $76.53 \%$ |
| 2 | Normal | 251 | $18.81 \%$ |
| 3 | Over Weight | 62 | $4.64 \%$ |
| Total |  | 1334 | 100 |

Table 5: Distributions of school children according to acute illness

| So. No. | TYPE OF ACUTE ILLNESS | NUMBERS | PERCENTAGES |
| :--- | :--- | :--- | :--- |
| 1 | URI | 531 | 39.80 |
| 2 | FEVER | 445 | 33.40 |
| 3 | DARRHOEA | 201 | 15.10 |

Table 6: school children according to specific problems (speciality)

| Category | No. of Students | Percentage |
| :--- | :--- | :--- |
| Ear | 239 | $17.9 \%$ |
| Nose | 16 | $1.2 \%$ |
| Throat | 8 | $0.6 . \%$ |
| Skin inf. |  |  |
| Pediculosis | 195 | $14.6 \%$ |
| Rashes \& Patches | 14 | $1 \%$ |
| Scabies | 11 | $0.8 \%$ |
| Tooth caries | 591 | $44.3 \%$ |
| Refractive error | 117 | $8.8 \%$ |

Table 7: Children according to positive systemic examination findings

| Body systems | No. of Students | Percentage |
| :--- | :--- | :--- |
| Respiratory Systems | 312 | $23.4 \%$ |
| Digestive system | 22 | $1.6 \%$ |
| Central Nervous System | 5 | $0.3 \%$ |
| Cardio-Vascular System | 2 | $0.1 \%$ |
| ENT | 263 | $19.70 \%$ |
| Total 604 |  | $45.10 \%$ |



Graph 1: Comparison of weight for age in private \& government schools

Table 8: School children according to prevalence of communicable diseases in govt \& private schools

| Types | Govt. school (887) | Private school (447) | Chi-Sq Test |
| :--- | :--- | :--- | :--- |
| Diarrhoea | $143(16.1 \%)$ | $45(10.0 \%)$ | $\mathrm{P}<0.05$ (Significant) |
| URI | $357(40.2 \%)$ | $155(34.7 \%)$ | $\mathrm{P}<0.05$ (Significant) |

## Govt $\square$ Private



Graph 2: Comparison of prevalence of vitamin deficiency in private \& government schools


Graph 3: Distributions of dental caries among various age groups


Graph 4: Distribution of student according to refractive errors among various age groups

Table 9: Comparison of weight for age between male and female

| Category | Male No. | Percentage | Female No. | Percentage |
| :--- | :--- | :--- | :--- | :--- |
| Under weight | 540 | $81.1 \%$ | 481 | $72 \% \quad(\mathrm{P}>0.05)$ |
| Normal | 100 | $15.0 \%$ | 151 | $22.6 \% \quad(\mathrm{p}>0.05)$ |
| Over Weight | 26 | $3.9 \%$ | 36 | $5.4 \% \quad(\mathrm{p}>0.05)$ |
| Total | 666 | $100 \%$ | 668 | $100 \%$ |

Table 10: Vitamin deficiencies among male and female school students

| Types of <br> Vitamins | Male | Percentage | Female | Percentage | Chi-Sq test |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Vit A | 46 | $6.9 \%$ | 24 | $3.6 \%$ | $\mathrm{P}<0.05$ |
| Vit B | 39 | $5.9 \%$ | 20 | $3 \%$ | $\mathrm{P}<0.05$ |
| Vit C | 27 | $4.1 \%$ | 24 | $3.6 \%$ | $\mathrm{P}>0.05$ |
| Vit D | 11 | $1.7 \%$ | 0 | $0 \%$ | $\mathrm{P}<0.05$ |
| Total | 123 | $17.6 \%$ | 68 | $10.20 \%$ |  |

