



Original Research Article

## A Study of Health Status among School Going Adolescents in South India

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### ABSTRACT

**Introduction:** In human growth and maturation, adolescence period is significant. In India, 21.4 percent population is adolescents (10-19 years) which accounts for one fifth of the total population. For maintaining good health in adult, it is very important to achieve optimum growth during adolescent age. The present study was carried out with the objective to assess health status and morbidity pattern among school going adolescents in urban area of South India.

**Materials and methods:** The present study was conducted in the year 2010 in 3 urban schools which are in the field practice area of department of community medicine. A team of doctor, social workers and school teachers examined all children in the age group of 10 to 19 Years studying in these schools.

**Results:** In the present study, 210 adolescents participated. Out of them 72(34.29%) were girls and 138 (65.71%) were boys. According to weight for age criteria, 53.33% of the adolescents were found to be normal and 46.67% were malnourished. By applying height for age criteria it was found that 32.86 % of the adolescents were stunted with boys suffering more 66.67% as compared to girls 33.3%. The dental caries was the commonest (41.90%) among all health problems.

**Conclusion:** The study shows that the health and nutritional status among the adolescents was low. A periodical and regular health check-up with concerted efforts towards nutrition of adolescents along with focused health education will improve the health and nutritional status of these schools going adolescents in their future.

**Key words:** Health status, school, adolescents.

### INTRODUCTION

In human growth and maturation, adolescence period is significant. In India, 21.4 percent population is adolescents (10-19 years) which accounts for one fifth of the total population.<sup>[1]</sup> One of the important index of the national investment in the development of its future manpower is the

health and nutritional status of the children in the country.<sup>[2]</sup> Therefore comprehensive health care should be provided to this age group. For maintaining good health in adult, it is very important to achieve optimum growth during adolescent age. If adolescents get poor nutrition, they may have short stature and low lean body mass which is

associated with many concurrent and future adverse health outcomes. Many of health problems in children can be detected by providing school health services. We can treat and prevent many of serious complications in children through regular school survey.<sup>[3]</sup> Therefore this study was carried out with the objective to assess health status and morbidity pattern among school going adolescents in urban area of South India.

## MATERIALS AND METHODS

The present study was conducted in the year 2010 in 3 urban schools which are in the field practice area of department of community medicine, Katuri Medical College and Hospital, Guntur, Andhra Pradesh. A team of doctors, social workers and school teachers examined all children in the age group of 10 to 19 Years studying in these schools. The head of the institution was informed and his consent was taken before the study. Body weight was measured (to the nearest 0.5 kg) on weighing scale machine. Height was measured (to the nearest 0.5 cm) with the subject standing in an erect position against a vertical scale and with the head positioned. WHO criteria for weight for age (underweight) and height for age (stunting)

was used for assessing nutritional status of the adolescents.<sup>[4]</sup> In good natural light, general examination of all the students was carried out. For the diagnosis of anemia, clinical signs such as presence of pallor on the conjunctiva, tongue and palm were used. Wherever any health problem was detected, the teachers were met and explained the problem and guided about the further course of action. Referral was made for further management. Data thus generated was entered and analyzed using SPSS package. For testing statistical significance, chi-square value was used.

## RESULTS

In the present study, 210 adolescents participated. Out of them 72(34.29%) were girls and 138 (65.71%) were boys between the age of 10 to 19 years. Mean age of the adolescents was 13.66 + 1.91. According to weight for age criteria, 53.33% of the adolescents were found to be normal and 46.67% were malnourished.

In early adolescents' age group in which the growth spurt takes place, 69.39% children were underweight whereas in late adolescents age group only 30.61% children were underweight. This was found to be statistically significant (Table 1).

**Table 1: Nutritional status of study subjects (underweight).**

Variables	Nutritional status				Total	percentage
	Underweight	Percentage	Normal	Percentage		
<b>Sex</b>						
Boys	61	62.24 %	77	68.75%	138	65.71%
Girls	37	37.76%	35	31.25%	72	34.29%
<b>Adolescents</b>						
Early adolescent	68	69.39%	63	56.25%	131	62.38%
Late Adolescent	30	30.61%	49	43.75%	79	37.62%
Total	98	46.67%	112	53.33%	210	100 %
$X^2 = 3.84, df=1, p < 0.04$						

By applying height for age criteria it was found that 32.86 % of the adolescents were stunted with boys suffering more 66.67% as compared to girls 33.3%. 73.91% early adolescents were stunted as compared to 26.09% late adolescents (Table 2).

**Table 2: Nutritional status of study subjects (stunting).**

Variables	Nutritional status				Total	percentage
	Stunting	Percentage	Normal	Percentage		
Sex						
Boys	46	66.67%	92	65.25%	138	65.71%
Girls	23	33.33%	49	34.75%	72	34.29%
Adolescents						
Earlyadolescent	51	73.91%	80	56.74%	131	62.38%
LateAdolescent	18	26.09%	61	43.26%	79	37.62%
Total	69	32.86%	141	67.14%	210	100 %
X <sup>2</sup> = 5.82, df=1, p< 0.01						

Table 3 shows the various morbid conditions found among the adolescent. The dental caries was the commonest (41.90%) among all health problems. 36.19 % of the school going adolescents had anemia with girls suffering more 66.67% as compared to boys 20.29 %. Skin disorders were present in 20.95% adolescents. ENT problems were present in 17.62% adolescents. History of worm infestation was present in 13.33% adolescents.

**Table 3: Morbidity pattern among study subjects.**

Morbid condition	Boys (n=138)	Girls (n=72)	Total (n=210)
Anaemia	28(20.29%)	48(66.67%)	76(36.19%)
Dental caries	62(44.93%)	26(36.11%)	88(41.90%)
Skin disorders	28(20.29%)	16(22.22%)	44(20.95%)
ENT problems	16(11.59%)	21(29.17%)	37(17.62%)
H/o worms	17(12.32%)	11(15.28%)	28(13.33%)
Ophthalmic problems	15(10.87%)	9(12.5%)	24(11.43%)
Acute respiratory infection	15(10.87%)	6(8.33%)	21(10.00%)
Injuries	10(7.25%)	6(8.33%)	16(7.62%)

## DISCUSSION

Nutritional requirements are increased during adolescent age group. Adolescent anthropometry varies significantly worldwide.<sup>[4-5]</sup> Under nutrition is common public health problem worldwide mostly in developing countries including India. Proper nutrition is required for adequate growth and development of the child. In the present study, all the school going adolescents in the age groups of 10 – 19 years were examined. The mean age of boys (13.40 years) was significantly higher than the girls (12.61 years).

In the present study the mean height of the adolescents was higher but the mean weight and mean BMI of the adolescents was lower than those reported by Mukhopadhyay et al, among urban adolescents of Kolkata.<sup>[6]</sup> The mean height and mean body weights in the present study (in different ages and sexes) was far lower

than the median values of NCHS standards.<sup>[7]</sup> Saha Sudip Kumar et al<sup>[8]</sup> reported 32.3% urban school girls were in the normal range while 65.3% were overweight or obese. In the present study 53.33% of the adolescents were normal, nobody was overweight or obese and 46.67% were undernourished. The extent of under nutrition was higher than those among Nepali refugees reported by Woodruff et al,<sup>[9]</sup> but lower than those reported by one Indian study (53%).<sup>[10]</sup>

In the present study, 36.19% of the school going adolescents had anaemia with girls suffering more 66.67% as compared to boys. Ananthakrishnan et al<sup>[11]</sup> in his study found 57.1% school children had anaemia. Verma M et al<sup>[12]</sup> in his study in Punjab found 51.5% of urban school children had anemia. These similar results once again support the high percentages of anemia in developing countries/areas where poor

nutrition, hygiene and sanitation were present. 41.90% adolescents had dental caries. Panda P et al [13] in his study from Ludhiana found 24% school children had dental caries. Kishor S [14] in his study in Dehradun found 31% school children had dental caries. 17.62% school children were suffering from ENT problems. In a study by Ananthkrishnan S et al [11] ENT problems were present in 3.1% school children. Eye problems were present in 11.43% adolescents. This was much higher than as reported by Ananthkrishnan S et al [11] which was (2.7%).

In this study, skin diseases were reported in (20.95%) of children. Similar results were obtained by Negi KS et al [15] and Ananthkrishnan S et al. [11] Ocular morbidity was noticed in 11.43% study subjects which is much higher than as reported by Ananthkrishnan S et al [11] was (2.7%).

## CONCLUSIONS

The study shows that the health and nutritional status among the adolescents was low. Malnutrition and anaemia make the children more susceptible to infection. The problem of anemia needs to be tackled with education, food fortification, routine antihelminthic treatment, iron therapy and treatment of other chronic infections. A periodical and regular health check-up with concerted efforts towards their nutrition along with focused health education will improve the health and nutritional status of these schools going adolescents in their future.

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