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Original Research Article

Nutritional status and morbidity profile of school going adolescent boys in an urban area

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ABSTRACT

Background: The aims and objectives of the study were to study the morbidity profile and nutritional status of study population and to study the risk factors associated with morbidity in study population.
Methods: This cross-sectional study was conducted on boys studying in the municipal corporation school in Tasgaon, Sangli, Maharashtra. Total 450 adolescent boys (age between the 17 to 19 years) from class X, XI and XII and who were not seriously ill were included in the study.
Results: Most common morbidity was pallor seen in 40% students followed by ENT related problems seen in 38% students, skin problems seen in 30% of the patients. 52% students were found to underweight. 88.44% students were having one or other type of symptoms and only 11.56% students were asymptomatic. Proportion of underweight students was same in both religions, both urban and rural students, in all types of families and in all economic classes. Proportion of symptomatic students was quite more in Hindu religion, more in students from urban areas and in students belonging to class I and II socio economic status.
Conclusions: As more than half of the students were underweight, it was related to nutritional deficiencies because of lack of awareness regarding proper nutrition.

Keywords: Urban area, Adolescents, Health problems

INTRODUCTION

The term adolescence comes from Latin word meaning "to grow to maturity".[1] WHO has defined adolescence as a period between 10-19 years.[2] This period is further divided into: Early adolescence- 10 to 14 years and Late adolescence- 15 to 19 years.[3] In India, 20.07% of the total population is adolescents (10 to 19 years) i.e., more than 200 million.[4]

Even though this group of population has such a vast potential, it was a much neglected group till recent times.[5] Under-nutrition among adolescents is a major public health problem leading on impaired growth.[6] Anthropometry is the single most universally acceptable, cheap and non-invasive method available to researchers for the diagnosis of malnutrition.[7] The adolescent group includes the school-going group and junior college group. Self-awareness about the health status is also low in adolescent.[4] The common problems found among school going adolescents are malnutrition, communicable diseases, non-communicable diseases such as obesity and diabetes mellitus.[8] Nutritional deficiency disorders and skin infections, EYE and ENT infections, oral health and dental diseases, cardiovascular diseases are increased in adolescents.[5]

As information regarding the nutritional status of adolescents from the developing world was lacking for a

long time, this study is conducted to study the morbidity profile of school going adolescent boys in an urban area.

Aim

The aim was to study the morbidity profile of school going adolescent boys in an urban area.

Objectives

The objectives of the study were to study the morbidity profile and nutritional status of study population and to study the risk factors associated with morbidity in study population.

METHODS

This cross-sectional study was conducted in the municipal corporation school in Tasgaon, Sangli, Maharashtra from January 2019 to December 2019. Total 450 adolescent boys (age between the 17 to 19 years), were enrolled for the study during their examination in school health check-up. Students from class X, XI & XII and who were not seriously ill and were included in the study. Pre-designed, pre-tested questionnaire was used in interview. Weighing scale, height measuring machine, torch and Snellen's eye testing chart were the study tools.

Inclusion criteria

Late adolescent boys whose age is between the 15 to 19 years at the time of examination, boys studying in Municipal Corporation school in class X, XI & XII, boys who were not seriously ill and were present during the day of study were included.

Exclusion criteria

Students above or below 15 to 19 years of age, who were seriously ill or absent during the study day and students who were not willing to participate in this study were excluded.

Sample size

The required sample size is estimated based on following formula for the study with help of MS Excel based application. Sample size is calculated to estimate the prevalence of stunting problems were 53.31% by Bhattacharya et al, with 10% allowable error 95%.[9]

Formula $n = \frac{4\times P\times Q}{L^2}$,

[L- Allowable error (5%)]

n=398

Minimum sample size as per calculations is 353. In the present study, we took sample size of 425.

Sampling technique

The required sample size for the study is 425 which need to be examining in the study during first 6 months of the data collection period i.e. January 2019 to June 2019. For this purpose, four times a month examination is done. It implies that around 18 to 20 boys need to be examined per week and 75 to 80 students per month.

Ethical clearance was obtained from the institutional ethical committee.

RESULTS

Table 1 shows demographic profile of students. Morbidities present in students are shown in Table 2. Most common morbidity was pallor seen in 40% students followed by ENT related problems like tonsillitis, pharyngitis seen in 38% students, skin problems like ring worm infection, scabies and acne vulgaris seen in 30% of the patients. 52% students were found to underweight. 88.44% students were having one or other type of symptoms and only 11.56% students were asymptomatic.

Table.1: Demographic profile of students.

Demographic factors	Classification	Frequency	%
Age (in years)	17	247	54.89
	18	113	25.11
	19	90	20.00
Standard	10^{th}	247	54.89
	11^{th}	113	25.11
	12^{th}	90	20.00
Residence	Urban	269	59.78
	Rural	181	40.22
Type of Family	Joint	95	21.11
	Nuclear	336	74.67
	Three generation	19	4.22
Socio-economic Status	Upper	114	25.33
	Upper middle	154	34.22
	Middle	111	24.67
	Lower middle	58	12.89
	Lower	13	2.89
Religion	Hindu	363	80.67
	Muslim	87	19.33

In the present study, out of 450 students, the most common presenting complaint was pallor seen in 180 (40%) students followed by ENT related problems like tonsillitis, pharyngitis seen in 171 (38%) students, skin problems like ring worm infection, scabies and acne vulgaris seen in 135 (30%), dental caries were seen in 144 (32%) students and refractory errors was seen in 54 (12%) students (Figure 1). Nutritional status of 216 (48%) students was normal and 234 (52%) students were found to underweight. No students were overweight (Figure 2).

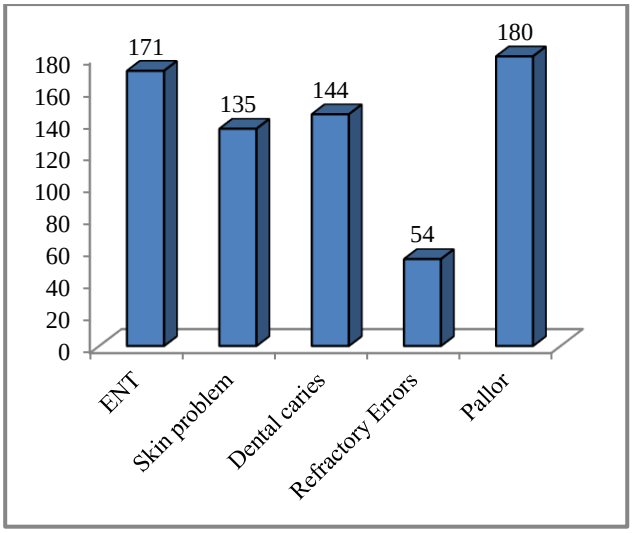

Figure 1: Morbidities present in students.
*ENT- ear, nose throat.

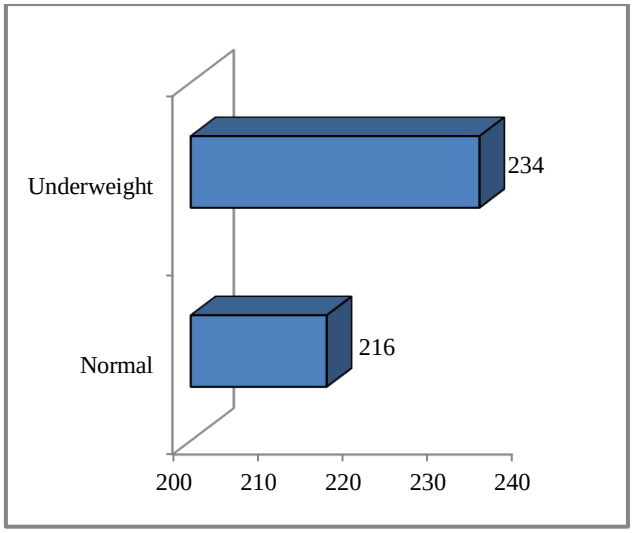

Figure 2: Nutritional status of students.

Table 2: Morbidities and health status of students.

Variables	Classification	No. of cases	%
Symptomatic	Yes	387	88.44
	No	63	11.56

Table 2 shows that 387 (88.44%) students were having one or other type of symptom and only 63 (11.56%) students were asymptomatic.

Proportion of underweight students was same in both religions, both urban and rural students, in all types of families and in all economic classes. The association was not found to be significant. Proportion of symptomatic students was quite more in Hindu religion, more in students from urban areas and in students belonging to class I & II socio economic status and association was found to be significant. After applying multiple logistic regressions urban residence was found to be significantly associated with symptomatic status of the students.

Table 3: Association between demographic factors and nutritional status and symptomatic status of students.

Demographic Factors		Underweight (%)	P value	Symptomatic	P value
Religion	Hindu	188 (51.79)	0.86	318 (87.60)	0.04
	Muslim	46 (52.87)		69 (79.31)	
Residence	Urban	137 (50.92)	0.57	240 (89.22)	0.01
	Rural	97 (53.59)		147 (81.21)	
Type of family	Nuclear and joint	228 (52.90)	0.06	371 (86.07)	0.82
	Three generation	6 (31.57)		16 (84.21)	
Socio economic status	I & II	133 (49.62)	0.22	246 (91.79)	<0.01
	III, IV & V	101 (55.50)		141 (77.47)	

DISCUSSION

In the present study, out of 450 students, the most common presenting complaint was Pallor seen in 40% students followed by ENT related problems in 38% students, skin problems like in 30%, dental caries were seen in 32% students and refractory errors was seen in 12% students. As in our study, Bhattacharya et al also found that most common complaint was pallor seen in 55.18% of the school-going adolescents, 68.61% adolescents had one or the other ENT problem, 38.90% adolescents had skin problems, about 40.33% adolescents had dental caries, 33.49% adolescents were found to be suffering from refractive errors.[9] But unlike Naseem et al found that most common problem was dental problems seen in 75.6% students, ENT problems in 44%, skin diseases seen in 82% students, and eye problems in 13.2% students.[10] Mary et al found that among 342 subjects, 42.1% of subjects had experienced dental caries in their lifetime.[11]

In the present study, out of 450 students, nutritional status of 48% students was normal and 52% students were found to underweight. Bhattacharya et al mentioned similar findings regarding nutritional status, about 46.69% of the adolescents were found to be normal and 53.31% were undernourished as per their weight-for-age criteria.[9] But in a study by Dey et al and Modi et al, only 28% and 16.67% participants were under-weight respectively.[12,13]

In the present study, proportion of symptomatic students was quite more in Hindu religion and association was found to be significant. Similarly, Bhattacharya et al found that the prevalence rate of underweight was significantly not associated with religion of the study population ($p>0.05$).[9]

In the present study, proportion of underweight students was almost same in both groups and association was not found to be significant. Association was also significant in a study by Naseem et al, found that the incidence of underweight (less than 50% centile) in urban school children was 33.75% whereas it was 35.87% in rural school children.[10]

In the present study, proportion of underweight students was almost same in both groups of families and association was not found to be significant. Similar findings were seen in a study by Bhattacharya et al, found that the prevalence rate of underweight was significantly associated with the type of family.[9] Srivastav et al also mentioned that the risk of malnutrition was significantly higher among children living in joint families.[14]

In the present study, proportion of underweight students was almost same in both groups of socio-economic status and association was not found to be significant. Our findings are comparable with findings of Bhattacharya et al, found that the prevalence rate of underweight was significantly associated with socio-economic status ($p<0.05$).[9]

CONCLUSION

As more than half of the students were underweight, it was related to nutritional deficiencies because of lack of awareness regarding proper nutrition. Many factors like residence, religion related dietary habits, economic classes and types of families are responsible factors for underweight but in present study it was not found to be associated with these factors.

Strength of study

All nutritional status and morbidity profile of school going boys are highlighted in the study which is an important aspect of transitional period of adolescence.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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