Section: Community Medicine

Original Research Article

A COMPARATIVE STUDY ON HEALTH STATUS OF ADOLESCENT BOYS AND GIRLS IN URBAN AND RURAL FIELD PRACTICE AREAS OF SOUTH INDIA

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ABSTRACT

Background: The World Health Organization (WHO) defines "adolescents" as individuals in the 10-19 years age group. There are about 360 million adolescents, comprising about 20% of the population in the countries of the South-East Asia Region (SEAR). Most of these health problems during this opportunistic phase are either preventable or treatable. The objective is to assess and compare the health profile of school going adolescents in urban and rural areas of South India.

Materials and Methods: A school-based, cross-sectional study was done among 416 Adolescent girls and boys between 10-19 years of age residing in the urban and rural field practice areas of Kurnool medical college, Data were collected between March 2023 to March 2025 using Semi-structured questionnaire by Simple Random sampling technique. IEC permission was obtained. Written informed consent was obtained from participants. Data were analysed using SPSS Version 21.

Results: The majority of the adolescents belong to 10-15 years in both urban (76.92%) and rural areas (79.32%) and the majority of the adolescents were Hindu by religion in both urban (77.88%) and rural areas (74.51%). In urban areas, acute respiratory infection (ARI) (19.23%) was the commonest reported morbidity, followed by acute gastrointestinal disease (12.01%). Among rural adolescents, acute respiratory infection (24.51%) was the commonest reported morbidity, followed by dental problems (9.13%).

Conclusion: The present study indicates that adolescents experience various health problems. Predominant morbidities observed in study subjects are acute respiratory infection (ARI), acute gastrointestinal disease and dental problems.

Keywords: Adolescent, Health status, Health problem, Morbidity, Prevalence.

INTRODUCTION

World Health Organization (WHO) defines "Adolescents" as individuals in the 10-19 years age group. There are about 360 million adolescents comprising about 20% of the population in the countries of the South-East Asia Region (SEAR).[1] In India, there are 253 million adolescents between the ages of 10 to 19 years. The world's largest adolescent population resides in India. Every 5th person in India is adolescent.[2] Adolescents' health and wellbeing are important as they account for 45% of potential skeletal growth, 15-25% of adult height gain and 37% of total bone mass accumulation.[3,4] This age group consists of individuals in a transient phase of life requiring nutrition, Counselling, education and guidance to ensure their development into healthy adults. If they are to reach adulthood in a healthy state, then it's necessary to analyze the common health problems prevalent in this age-group so that targeted and concerted services could be provided to them.[5]

It is estimated that, out of three one child has some sign of ill health manifesting in the form of dental, visual and hearing problems, nutritional deficiencies, respiratory infections, skin problems, musculoskeletal disabilities.[6] And most of these health problems during this opportunistic phase are either preventable or treatable and are associated with various behaviours like poor eating habits, lack of physical activity, exposure to violence, tobacco and alcohol use.[7] Early detection of the morbidities or various health problems through regular survey and check-up helps in prompt treatment and prevention of later complications.[8] So that it provides quality data for developing evidence-based interventions. Hence, the present study aims to identify the present morbidity status among rural and urban adolescents.

MATERIALS AND METHODS

A School based cross-sectional study was carried out from March 2023 to March 2025. The study population consisted of Adolescent girls and boys between 10-19 years of age residing in the urban and rural field practice area of Kurnool medical college, Kurnool in South India.

Out of 305 Schools in the Kurnool district, there are 4 government schools that provide education to the 6th to 10th classes in the field practice areas of Kurnool Medical College. In the present study, Students from 7th to 10th class in the field practice areas of Kurnool Medical College were included and data was collected from two government high schools in the rural field practice area of Kurnool Medical College and from two government high schools in the urban field practice area of Kurnool Medical College. From each school, the students from 10 to 19 years of age were selected by the Simple Random Sampling Method.

The Sample size was calculated based on the most common adolescent health problem in India, that is anaemia with 50.8% of prevalence from a previous study in Sarjapur by Baburajan C [9] and the sample size was estimated as 416. Being a comparative cross-sectional study, 208 participants were selected from the rural field practice area and another 208 participants were selected from the urban field practice area of the department of Community Medicine, Kurnool Medical college.

Adolescent girls who attained menarche and Adolescent boys between 10-19 years of age, who were studying 7th to 10th standards in the selected schools and whose parents/teachers consented to participation in the study were included.

The adolescents who were not present in the schools during the study period and could not be contacted on three consecutive visits, Adolescent girls who had not attained menarche, seriously ill and adolescents not willing to give consent/assent for the study were excluded. This study has been approved by the institutional ethics committee (IEC NO.209/2023).

After permission was taken from the school authorities, a date was fixed for interviewing the student.

Students were randomly selected from each field practice area to get the desired sample size of 208. It was decided to include equal numbers of male and female adolescents from each school to maintain uniformity.

Finally, a total of 416 students were selected for the study. The students from each class were randomly selected using their roll numbers from class registers. If a student was absent on three consecutive visits or unwilling to take part in the study, then the student with a subsequent roll number was selected for the interview. Adequate rapport was built before the interview.

Strict privacy and confidentiality were maintained while interviewing the adolescents. The objective of the study and the benefits to the adolescents were explained and their written informed assent was obtained from the participants as they were >12 years old. A Semi- structured Questionnaire was used to collect data.

Participants were interviewed using a pretested, semi-structured questionnaire and information on socio-demographic data and general morbidity. General morbidity in the present study was defined as any subjective departure from the state of physiological well-being in the last one month and the presence of known systemic disorders. It contained details on various common morbidities affecting the different organ systems of adolescents.

Statistical Analysis was done using IBM's SPSS version 21. Descriptive data were presented as frequencies and proportions and Categorical variables were assessed using the chi-squared test. A P-value of less than 0.05 was considered statistically significant.

RESULTS

In the present study, among the 208 urban and 208 rural participants, the majority in both areas belonged to the 10–15 years age group (urban 76.92%, rural 79.32%). In terms of religion, most participants were Hindus in both urban (79.80%) and rural (74.51%) areas. Regarding fathers' education, the highest proportion in urban areas had completed intermediate/diploma (22.11%), while in rural areas the majority had studied up to high school (24.51%). For mothers' education, middle school was most common in urban areas (22.59%), whereas in rural areas primary school and middle school were equally predominant (24.51% each). In the urban area, the majority of fathers were skilled workers (32.21%), while in the rural area also the majority were skilled workers (38.46%). Among mothers, the majority in urban (42.30%) as well as rural areas (40.38%) were unskilled workers. Regarding type of family, nuclear families constituted the majority in both urban (76.44%) and rural areas (71.63%). In the urban area,

the majority of families belonged to Class V (31.73%) according to the Modified B.G. Prasad classification, whereas in the rural area, the majority belonged to Class IV (43.75%).

Table 1: Prevalence of general morbidity according to residence of the study participants (n=416)

General morbidity	Urban (n=208) N %	Rural (n=208) N %	Total (n=416) N %
Present	97 (46.63%)	98 (47.11%)	195 (46.87%)
Absent	111 (53.36%)	110 (52.88%)	221 (53.12%)

[Table 1] shows the general morbidity status of the adolescents. In urban areas 46.63% of adolescents were affected by one or more morbidity conditions and in rural areas 47.11% of adolescents were affected by one or more morbidity condition.

Table 2: Distribution of type of general morbidity according to residence of the study participants (n=416)

Type of general morbidity	Urban (n=208)		Rural (n=208)		Total (n=416) N %
	Present (n=97) N %	Absent (n=111) N %	Present (n=98) N %	Absent (n=110) N %	
Fever	12 (5.76%)	196 (94.23%)	16 (7.69%)	192 (92.30%)	28 (6.73%)
COLD/ARI	40 (19.23%)	168 (80.76%)	51 (24.51%)	157 (75.48%)	91(21.87%)
Tonsillitis	7 (3.36%)	201 (96.63%)	2 (0.96%)	206 (99.03%)	9 (2.16%)
Acute Gastrointestinal Disease	25 (12.01%)	183 (87.98%)	15 (7.21%)	193 (92.78%)	40 (9.16%)
Ear Infection	10 (4.80%)	198 (95.19%)	3 (1.44%)	205 (98.55%)	13 (3.12%)
Acne vulgaris	14 (6.73%)	194 (93.26%)	13 (6.25%)	195 (93.75%)	27 (6.49%)
Dental Problem	24 (11.53%)	184 (88.46%)	19 (9.13%)	189 (90.86%)	43 (10.33%)
Refractive Errors	18 (8.65%)	190 (91.34%)	12 (5.76%)	196 (94.23%)	30 (7.21%)
Asthma	3 (1.44%)	205 (98.55%)	5 (2.40%)	203 (97.59%)	8 (1.92%)
Injuries And Accidents	9 (4.32%)	199 (95.67%)	6 (2.88%)	202 (97.11%)	15 (3.60%)
Epilepsy	3 (1.44%)	205 (98.55%)	3 (1.44%)	205 (98.55%)	6 (1.44%)
Heart Disease	2 (0.96%)	206 (99.03%)	3 (1.44%)	205 (98.55%)	5 (1.20%)
Skin diseases	4 (1.92%)	204 (98.07%)	4 (1.92%)	204 (98.07%)	8 (1.92%)
Headache	12 (5.76%)	196 (94.23%)	15 (7.21%)	193(92.78%)	27 (6.49%)

[Table 2] shows the most commonly affected morbidities of the adolescents. In urban areas, COLD/ acute respiratory infection (19.23%) was the commonest reported morbidity followed by acute gastrointestinal disease (12.01%), dental problems (11.53%), refractive errors (8.65%), acne vulgaris (6.73%), fever (5.76%) and headache (5.76%) ear infection (4.80%), injuries and accidents (4.32%). Among rural adolescents, COLD/ acute respiratory infection (24.51%) was the commonest reported morbidity followed by dental problems (9.13%), Fever (7.69%), Headache (7.21%) and acute gastrointestinal disease (7.21%), acne vulgaris (6.73%), refractive errors (5.76%), injuries and accidents (2.88%).

Table 3: Assessment of association between Socio-demographic details and general morbidity among rural and urban study participants (n=416)

Characteristics	Urban		Total	Rural		Total
	General morbidity Present (n=97)	General morbidity Absent (n=111)		General morbidity Present (n=98)	General morbidity Absent (n=110)	
Age (Years) 10-15	85 (53.12)	75(46.87)	160	84 (50.9)	81 (49.1)	165
16-19	12 (25)	36 (25)	48	14 (32.6)	29 (67.4)	43
Total	97	111	208	98	110	208
	Chi square test = 11.74 df = 1 p value <0.001(S)			Chi square test = 4.61 df = 1 p value 0.032		
Religion Hindu	79 (48.8)	83 (51.2)	162	78 (50.3)	77 (49.7)	155
Muslim	8 (25.8)	23 (74.2)	31	6 (21.4)	22 (78.6)	28
Christian	10 (66.7)	5 (33.3)	15	14 (56)	11 (44)	25
Total	97	111	208	98	110	208
	Chi square test = 8.12 df = 2 p value 0.017			Chi square test = 8.85 df = 2 p value 0.012		
Birth order One	39 (38.6)	62 (61.4)	101	37 (38.5)	59 (61.5)	96
Two	43 (51.8)	40 (48.2)	83	45 (60.8)	29 (39.2)	74
More than two	15 (62.5)	9 (37.5)	24	16 (42.1)	22 (57.9)	38
Total	97	111	208	98	110	208
	Chi square test = 5.93 df = 2 p value 0.052			Chi square test = 8.79 df = 2 p value 0.012		

[Table 3] shows the association between Socio-demographic details like age, religion and birth order with general morbidity in rural and urban areas. The majority of the participants with general morbidity

belonged to the age group of 10-15 years in both urban and rural areas, which was statistically significant in both urban (p value <0.001) and rural area (p value 0.032). The majority of the participants with general morbidity belonged to the Hindu religion in both urban and rural areas, which was statistically significant in both urban (p value 0.017) and rural areas (p value 0.012). The majority of the participants with general morbidity were second born in both urban and rural areas, which was statistically significant in both urban (p value 0.052) and rural areas (p value 0.012).

Table 4: Association between Socio-demographic details and general morbidity among rural and urban study participants (n=416)

Characteristics	Urban		Total	Rural		Total
	General morbidity Present	General morbidity Absent		General morbidity Present	General morbidity Absent	
Father's education						
Illiterate	15 (57.7%)	11 (42.3%)	26	7 (53.8%)	6 (46.2%)	13
Primary School	22 (48.9%)	23 (51,1%)	45	24 (43.6%)	31 (56.4%)	55
Middle School	17 (47.2%)	19 (52.8%)	36	13 (44.8%)	16 (55.2%)	29
High School	20 (45.5%)	24 (54.5%)	44	26 (51%)	25 (49%)	51
Intermediate /diploma	20 (43.5%)	26 (56.5%)	46	24 (50%)	24 (50%)	48
Graduate	3 (27.3%)	8 (72.7%)	11	4 (33.3%)	8 (66.7%)	12
Postgraduate	0 (0)	0 (0)	0	0 (0)	0 (0)	0
Total	97	111	208	98	110	208
	Chi square test = 3.24 df = 5 p value 0.066			Chi square test = 1.95 df = 5 p value 0.85		
Mother's education						
Illiterate	25 (59.5%)	17 (40.5%)	42	17 (53.1%)	15 (46.9%)	32
Primary School	17 (39.5%)	26 (60.5%)	43	22 (43.1%)	29 (56.9%)	51
Middle School	17 (36.2%)	30 (63.8%)	47	25 (49%)	26 (51%)	51
High School	22 (50%)	22 (50%)	44	23 (47.9%)	25 (52.1%)	48
Intermediate /diploma	12 (48%)	13 (52%)	25	8 (47.1%)	9 (52.9%)	17
Graduate	4 (57.1%)	3 (42.9%)	7	3 (33.3%)	6 (66.7%)	9
Postgraduate	0 (0)	0 (0)	0	0 (0)	0 (0)	0
Total	97	111	208	98	110	208
	Chi square test = 6.27 df = 5 p value 0.28			Chi square test = 1.56 df = 5 p value 0.90		

[Table 4] shows the association between Socio-demographic details like the education of the father and the mother with general morbidity in rural and urban areas. Both in urban and rural areas education of the mother and father was not statistically significant with general morbidity.

DISCUSSION

In the present study, majority participants were belonged to the Nuclear family (74.03%) followed by the joint family (18.99%).In a study by **Sathish Dev D et al** [10] in Thiruvallur district, majority belonged to the Nuclear family (73.2%) followed by the joint family (14.8%). **Shivani Sinha et al**[11] study in Lucknow district, reported that 81.7% belonged to nuclear family, followed by 18.3% belonged to joint family.

The prevalence of general morbidity in the present study was 47.11% and 46.63% among rural and urban Adolescents respectively. In the present study, acute respiratory infection (21.87%), was the commonest reported morbidity followed by dental problems (10.33%), acute gastrointestinal disease (9.61%).

Similarly, in rural areas, acute respiratory infection (24.51%) was the predominant problem followed by dental problem (9.13%), fever (7.69%). Among the Urban adolescents, acute respiratory infection (19.23%), acute gastrointestinal disease (12.01%) was reported as major problems followed by dental problems (11.53%), refractive errors (8.65%) were the major problem.

Similar findings were reported by Chinnaian Sivagurunathan et al,[12] study conducted in urban health center of Kancheepuram district, in which the most commonly reported morbidities were upper respiratory tract infection constituting 22.5% followed by gastrointestinal and ENT problems, skin disease, dental problems and eye problems. This difference may be due to the fact that in Kurnool PHC area, the school-going adolescents are regularly checked by the annual school check-ups by the medical college, whose field practice area it is, with regular deworming, prompt treatment and referral of common conditions like refractive error.

A Community based study conducted by Beeva Boruah et al,[13] in the rural health center Nagaon, Barpeta district, also reported similar findings, in which the commonest reported morbidities were anaemia 69.29%, followed by upper respiratory tract infection 37.14%, dental problems 28.57%.

In the present study, a significant association was found between general morbidity and age, religion, birth order, type of family for both urban and rural adolescents. This was comparable with the study by Neha Goyal,[7] conducted in both urban and rural areas of Uttarakhand, in which, type of family, Birth order were found to be statistically associated with morbidity.

CONCLUSION

The prevalence of general morbidity among adolescents was almost equal in both urban and rural areas. The prevalence of general morbidity among adolescents was more common during the phase of early adolescence. General morbidity among adolescents was decreasing with age.

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