Original Research Article

A cross sectional study on health risk behaviours among adolescent high school students of urban Raichur district, Karnataka

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Abstract

Background: Adolescents make up 1 in 6 persons in the world. Even though healthy, this group is prone for adverse health risk factors like alcohol and tobacco use, physical inactivity, eating and behavioural problems. These factors can adversely affect their health at present and also during their adulthood. Therefore, there is a necessity to promote healthy behaviours among the adolescents for their better development. **Objectives:** To find out the prevalence of health-related risk factors among the adolescent high school students of urban Raichur. **Methodology:** A cross sectional study conducted from June to August 2018, using a World Health Organization designed Global School-based Student Health Survey questionnaire (modified for India). The students from four randomly selected high schools of urban Raichur participated in the study (n= 559). **Results:** In the present study, the consumption of fruits, vegetables, energy dense beverages and energy dense snacks/ fast foods was 39%, 37.6%, 42.2% and 72.5% respectively. 39.5% of students had regular physical activity, 23.1% spent more than three hours watching TV/ playing computer games. The prevalence of tobacco smoking, smokeless forms of tobacco, alcohol among the students in past 30 days were 5.5%, 6.3% and 5.4% respectively. 37.9% of students reported to have experienced passive tobacco smoking. **Conclusions:** The results stress the need for intervention programmes aimed at increased consumption of fruits and vegetables and integrating other risk factors such as physical activity into health promotion among adolescents. Need for awareness against the harmful effects of tobacco and alcohol.

Key Word: Cross sectional, fruits, vegetables, adolescents, urban

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INTRODUCTION

Adolescence refers to those who are aged between 10-19 years.[1] Nearly 1.2 billion people in the world are adolescent (1 in 6 people of the world). Majority of them enjoy healthy life but, there are substantial illnesses and injuries which are prevalent that can hinder their ability to grow and develop to their full potential.[2] High school students comprises of age group from 13-16 years in India with an estimated population of 49.8million in India (2013-14) with gross enrolment ratio of 78.5[3] and nearly 2.6 million students were from Karnataka (2011-12).[4] During adolescence, they start to make individual choices and may develop risk behaviours like alcohol use, tobacco use, lack of physical activity, unprotected sex, exposure to violence, eating habits and behavioural problems which can impact their present health and also their health during adulthood.[2] Therefore, promoting healthy behaviours early during adolescence period and taking the necessary steps to protect them from acquiring risky health behaviours are critical for the prevention of health problems in adulthood and for the country's future and development. Raichur district is categorized among

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the most backward districts of Karnataka with a human development index as 0.547 in 2001.[5] Since there were no available studies related to health-related risk factors among the high school students of urban Raichur, the present study was intended with an objective to find out the prevalence of various health risk factors related to physical activity, alcohol use, tobacco use, dietary/ eating habits and school factors.

MATERIALS AND METHODS

Study design- Cross sectional study

Study period - June 2018 to August 2018

Study setting- Pre- selected high schools of urban Raichur city.

Sample size and sampling method- Four high schools of urban Raichur were selected randomly based on the strength of students. The students present during the visit, were included under the study. A total of 559 students participated in the study (N= 559)

Inclusion criteria: high school students from class VIII to Class X

Exclusion criteria: those Students who were absent during the visit (data collection).

Method of data collection: Ethical clearance for the study was taken from institutional ethical committee of Raichur institute of medical sciences, Raichur, Karnataka. Permission was taken from the head masters of the selected high schools to conduct the study. Data was collected using pre- tested semi- structured questionnaire after taking verbal consent from the study participants. The WHO Global school-based health survey questionnaire (GSHS- expanded questionnaire) was used to collect information regarding the various health risk behaviours. Students were asked to fill the questionnaire by themselves at school.

Statistical analysis: Data was entered using Microsoft Excel 2007 and analysed using Epi- Info 7 software and data was expressed in percentage/ proportions. Chi-square test of significance was used at significance level $p< 0.05$

OPERATIONAL DEFINITIONS

Fruit consumption: Avg. 100gm/ day or one portion/ serving per day over the last 30 days considered adequate.[6]

Vegetable consumption: Avg. 300gms/ day or three portion/ servings per day over the last 30 days was considered as adequate.[6]

Energy dense/ carbonated beverages: Includes coke, Pepsi, Limca and other similar products consumption over the last 30 days

Energy dense snacks/ fast foods: Includes street foods, Pizza, Burger, quick-meals like Samosa, Pakoda and Noodles consumed over the past 7 days.

Regular physical activity: Moderate to vigorous for at least 60mins per day, including sports or physical education classes.[2]

RESULTS

The study included 559 participants (270 males and 289 females). 181(32.4%) belonged to class VIII, 167(29.9%) to class IX and the rest of the participants 211(37.7%) belonged to class X. The age of the participants ranged from 13- 16 years with mean age of 14.45±0.95 years (Table 1).

Table 1: Distribution of participants (N=559)

Characteristics	Category	Number (%)
Age (yrs)	13	103(18.4)
	14	182(32.6)
	15	194(34.7)
	16	80(14.3)
Gender	Male	270(48.3)
	Female	289(51.7)
Class	VIII	181(32.4)
	IX	167(29.9)
	X	211(37.7)

In our study, only 218(39%) of the students consumed adequate fruits and 210(37.6%) consumed adequate quantity of vegetables. 115(20.6%) of the students have the habit of taking energy dense drinks for more than once in a day. Nearly three quarters 405(72.5%) of the students have taken energy dense snacks/ fast foods in the past 7 days and 35(6.3%) of them claim to have consumed it daily. (Table 2)

Table 2: Dietary risk behaviours

Characteristics	Category	Males (%) N=270	Females (%) N= 289	Total (%) N= 559	P value
Fruit consumption	No consumption	17(6.3)	17(5.9)	34(6.1)	<0.001
	In adequate (1-2 servings)	127(47)	180(62.3)	307(54.9)	
	Adequate (≥3 servings)	126(46)	92(31.8)	218(39)	
Vegetable consumption	No consumption	9(3.3)	8(2.8)	17(3)	<0.001
	Inadequate (<3 servings)	138(51.1)	194(67.1)	332(59.4)	
	Adequate (≥3 servings)	123(45.6)	87(30.1)	210(37.6)	
Energy dense beverages	Non consumption	166(61.5)	157(54.3)	323(57.8)	<0.05
	≤ 1 time a day	47(17.4)	74(25.6)	121(21.6)	
	> 1 time a day	57(21.1)	58(20.1)	115(20.6)	
Energy dense snacks/ fast foods (days in week)	0 days	89(33)	65(22.5)	154(27.5)	<0.05
	1-3 days	144(53.3)	192(66.4)	336(60.1)	
	3-6 days	16(5.9)	18(6.2)	34(6.1)	
	Daily	21(7.8)	14(4.8)	35(6.3)	

More than a third of the students 221(39.5%) were involved in the regular exercises (brisk walking for 60mins or more) and 45(8.1%) of the students were not involved in any physical education classes/ sessions in the past week. Nearly a quarter of the students 129(23.1%) used to watch TV or play computer games, listening to music for > 3 hours a day. More than half of the students 310(55.5%) reported sleeping for 6-8 hours in a day (Table3). In total of 30(5.4%) of the students admitted to have tried alcohol in the past 30 days, among them 12(2.1%) have tried at home. About 31(5.5%) of the students have tried smoking. Smokeless forms of tobacco was tried by 35(6.3%) of the students. 212(37.9%) of the students admit to people smoking in their presence/ exposure to passive tobacco smoke. (Table 4) Nearly 337(60.3%) of the students have not missed a day in the past 30 days. 453(81%) of the students admits to having a good social support at school. (Table 5)

Table 3: life style risk factors

Characteristics	Category	Male (%) N= 270	Female (%) N= 289	Total (%) N= 559	P value
Physical activity in a week	No activity	50(18.5)	38(13.2)	88(15.7)	>0.05
	Irregular	110(40.7)	140(48.4)	250(44.7)	
	Regular	110(40.7)	111(38.4)	221(39.5)	
Physical Education classes	0 days	36(13.3)	9(3.1)	45(8.1)	<0.001
	1-2 days	132(48.9)	165(57.1)	297(53.1)	
	3-4 days	34(12.6)	71(24.6)	105(18.8)	
	5 days	68(25.2)	44(15.2)	112(20)	
Hours spent watching TV	≤ 3 hrs	209(77.4)	221(76.5)	430(76.9)	>0.05
	> 3 hrs	61(22.6)	68(23.5)	129(23.1)	
Sleep per day	< 4 hrs	17(6.3)	11(3.8)	28(5)	<0.05
	4-6 hrs	68(25.2)	56(19.4)	124(22.2)	
	6-8 hrs	132(48.9)	178(61.6)	310(55.5)	
	> 8 hrs	53(19.6)	44(15.2)	97(17.4)	

Table 4: Alcohol and tobacco use

Characteristics	Category	Males (%) N= 270	Females (%) N=289	Total (%) N=559	P value
Alcohol	Tried	17(6.3)	13(4.5)	30(5.4)	>0.05
	Never tried	253(93.7)	276(49.5)	529(94.6)	
Tobacco smoking	Tried	21(7.8)	10(3.5)	31(5.5)	<0.05
	Never smoked	249(92.2)	279(96.5)	528(94.5)	
Smokeless tobacco	Tried	24(8.9)	11(3.8)	35(6.3)	<0.05
	Never tried	246(91.1)	278(96.2)	524(93.7)	
Passive smoke	Yes	104(38.5)	108(37.4)	212(37.9)	>0.05
	No	166(61.5)	181(62.6)	347(62.1)	

Table 5: School factors

Characteristics	Category	Number (%) N=559
Number of school days missed	0 days	337(60.3)
	1-2 days	149(26.7)
	> 3 days	73(13)
Perceived Social support	No	106(19)
	Yes	453(81)
Parental regulation	No	91(16.3)
	Yes	468(83.7)

DISCUSSION

Promoting healthy behaviours earlier during adolescence period and taking the necessary steps to protect them from acquiring bad/ risky health behaviours are critical for the prevention of health problems in adolescence and later in adulthood.

Dietary risk behaviours (Table 2): The percentage of adequate fruit consumption among the students was 39%. There is a considerable difference of adequate consumption of fruits among adolescent school children in different regions as shown by other studies; 21%[7], 30.9%[8], 51.4%[(9)], 64%[10] and 11.6%[11] respectively. The non-consumption of fruits was seen among 6% of the students which was considerably lower than other studies which reported as high as 45.3%[8]. The females consumed more fruits than males and it was statistically significant. The percentage of students consuming adequate amount of vegetables was 37.6%. The vegetable consumption observed in our study is lower than other studies which reported at 40.4%[8], 45.7%[9], 75.6%[10]and 71.9%[11] respectively. In our study, the females consumed significantly more vegetables than males on a daily basis. The percentage of students who had consumed Energy dense beverages was 42.2% which was less compared to other studies done on urban high school adolescents which reported at 61.9%[7], 72.3%[8], 70.8%[10] and 62.8%[11] respectively. The non consumption of these beverages was 57.8% which was considerably higher when compared with other studies 39.1[7] and 27.7%.[8] the consumption of energy dense beverages were significantly more among females than males. The percentage of students who have consumed Energy dense/ Fast foods over the past week was 72.5% which is consistent with other similar studies done among adolescent school children 74.9%[7], 70.6%[(8)], 70.8%[10], 86.6%[12] and 72.4%[13]. The consumption among female (77.5%) was more than among male (67%) students, which is opposite to what other studies have depicted.[13]

Lifestyle risk factors (Table 3): The percentage of students who had regular physical activity was found to be 39.5%,which is considerably higher than what was observed in similar other studies 28.8%[10], 29%[14] and 29.5%.[15] More than half of the students (53%) had at least one/ two physical education classes in a week. Nearly 20% of the students had physical education classes on all the school days suggesting physical education classes varies from school to school basis. The newer Central Board for Secondary Education guidelines states to include the physical education classes on a daily basis.[16] Nearly a quarter of the students (23.1%) admitted to have spent the leisure time by sedentary activities like watching TV, playing computer games and listening to music for more than 3 hours a day. The finding was lower than what was observed in other studies 37.5%[17]and 30.4%.[18] Majority of the students (55.5%) had sleep around 6-8 hours a day which is in line with the Bhatia *et al* study, which showed the average hours of sleep for an adolescent high school student in India was 7.8 hours a day.[19]

Alcohol and tobacco use (Table 4): The percentage of students who agreed to have taken alcohol in the past 30 days was 5.4%. It was more among male students (6.3%) than among female students (4.5%). Other studies showed the alcohol consumption among adolescent school children at 3.2%[10] and 2.2%[22] with an increased intake among male students compared to female students. The percentage of students who smoked during the past 30 days was 5.5%. Findings were similar to other studies which showed prevalence at 5.2%[10], 15.1%[20], 7.1%[21], 1.7%[22] and 1.2%[23]. The tobacco smoking was significantly higher among males than females.[10,20,21,22,23] Percentage of students who had consumed other smokeless forms of tobacco was 6.3% which was significantly higher among males than females. [10, 22, 23] other studies show a prevalence of 4.8%[10], 0.7%[22] and 3.7%.[23] the exposure to passive smoking among the students was found to be 37.9% in our study. Similar finding was observed among GHSH based study in India, which reported 37.1%.[23]other studies among adolescents reported passive smoking exposure at 83%[11] and 16.9%[22]

School factors (Table 5): More than half of the students 60.3% were regular at school and 39.7% were irregular/ absent for a few days in the past 30 days. It was comparably higher than similar study done among CBSE high school students in India 26.8%.[23] About 81% of the students agreed to have a good social support from other students in their school which is considerably higher compared to other studies at 59%.[23] nearly 16.3% of the students agreed to have no parental regulation at home, especially when they are alone or during leisure, which is

comparatively less compared to other study which showed an alarming 27.9% lack of parental regulation.[23] parental regulation/ control, support and school environment play a major role towards the positive health of the adolescents.

CONCLUSION

This study gives an overview of the magnitude of the unhealthy risk factors prevalent among the adolescent high school children of the urban areas of Raichur. These factors can be evaluated further in depth by qualitative and quantitative methods. The consumption of fruits, vegetables, energy dense beverages and energy dense snacks/ fast foods was 39%, 37.6%, 42.2% and 72.5% respectively, Suggesting the inclination of urban adolescent school children towards energy dense beverages and fast foods. 15.7% of students had no physical activity in the past week, 23.1% spent more than 3 hours watching TV/ playing computer games, suggesting the prevalent sedentary life style habit. The prevalence of tobacco smoking, use of smokeless forms of tobacco, alcohol among the students in past 30 days were 5.5%, 6.3% and 5.4% respectively. 37.9% of students reported to have experienced passive tobacco smoking. Proper health education, effective curriculum for physical activity, providing healthy and encouraging environment at school can prevent any potential consequences related to these factors.

LIMITATIONS

It was a questionnaire-based tool to find out the unhealthy risk factors prevalent among the school children. The potential bias of non- disclosure of information or hiding, especially regarding alcohol and tobacco abuse, leading to under estimation of the burden of the risk factors. It involved only urban high school children of Raichur, the results cannot be generalised to other populations or other settings.

Recommendations: Promotion of healthy eating habits like increased fruits and vegetables intake. Reducing the intake of high energy dense foods and beverages among students by proper health education. Increasing active Participation in the physical education classes. Creating awareness regarding harmful effects of alcohol, tobacco smoking, tobacco chewing. A formal approach should be adopted towards monitoring regarding absenteeism at school by involving parents at various levels of educational activities at school.

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