



Prevalence of tobacco use among Class-10 students in an urban field practice area, Bangalore: A cross sectional study

Malappurath Suresh Shruthi, Riyaz Basha, Selvi Thangaraj, Rangnath T.S.

Bangalore Medical College and Research Institute Department of Community Medicine,
Bangalore, India

Abstract

The aim of this article is to study prevalence and perception of tobacco use among 10th Standard students in an urban field practice area in Bangalore. Smoking is the most widespread, modern social disease worldwide; and one “tobacco-related” death occurring every 8 seconds in India, whereas avoiding tobacco adds 20 yrs to the life of a teenager. Efficient preventive programs implemented among adolescents would considerably lower the morbidity and mortality in adults for chronic diseases. High schools of the urban field practice area were selected by simple random sampling. Data was collected by self-administering of pre-structured questionnaire to all Class 10 students of each of the selected schools. Overall prevalence of tobacco use was 17.9%. There was a statistically significant association between gender, parental influence and tobacco use among students ($p < 0.001$). Majority of the students first used tobacco between ages of 12 to 15 years. Among boys who use tobacco, smoking is more common and among girls, use of smokeless forms of tobacco is more common. 70.6% students were aware that smoking is harmful to health. It is feasible and worthwhile to identify the nature of tobacco use among high school students. The results imply the importance of primordial prevention targeting the adolescent age group, to increase awareness of the hazards of tobacco use on health, in order to reduce the “tobacco-related” morbidity and mortality in adulthood.

Key words: tobacco use, smokeless forms of tobacco, smoking, students

(Rec.Date: Sep 03, 2012 - Accept Date: Sep 14, 2012)

Corresponding Author: Dr. Malappurath Suresh Shruthi, No.F4, Amina Beaufort Apt, #226, Nawab Hyder Ali Khan Road, Kalasipalya, Bangalore, Karnataka, India
E-mail: drmsshruthi@gmail.com Phone: 9902548940

Introduction

The believing we do something when we do nothing is the first illusion of tobacco.

~Ralph Waldo Emerson

One of the major problems confronting society from the beginning of the twenty-first century is the increasing substance use and abuse by young people. Despite many studies of this problem, there is still little understanding of the causes, appropriate treatment and, most importantly, successful approaches to prevention [1]. Substance abuse ranges from readily available and legal substances such as tobacco, to more uncommon and illegal substances such as cocaine. Though the latter gives rise to more public concern, there is little doubt that cigarette smoking has far more deleterious effects on the health of the population as a whole [2]. Adolescence was considered one of the healthiest periods in human life, but due to a combination of biological, psychological and social factors, it is now recognized to be associated with a wide range of health problems. It is a time for natural experimentation which leads them to risk behaviours such as tobacco use [3]. Risk behaviours are defined as actions that jeopardize one's physical, psychological and emotional health [4]. Tobacco serves as the gateway to drug addiction: addicts progress from one drug to the next, which is usually more potent and hazardous than the previous one [5]. In India, tobacco chewing is also prevalent, whereas in other parts of the world, smoking is more common. By age 11 yrs, experimentation with smoking begins in various parts of the world [6].

According to NFHS-3 tobacco use is much more prevalent in men than among women aged 15 to 49 yrs; 57% of men, compared with 11% of women use some form of tobacco. One third men smoke cigarettes or bidis, and 37% use paan (betel quid), paan masala, gutkha, or other forms of chewing tobacco. By contrast, only 1% of women smoke cigarettes or bidis, and 8% chew paan or other smokeless tobacco products [7]. About half of the teenagers who use tobacco will eventually be killed by it. Avoiding tobacco adds 20 yrs to the life of a teenager. To formulate effective control measures targeting the adolescent age group, it is necessary to first understand the burden of tobacco use among them. Hence, the present study was conducted to investigate the prevalence of tobacco use among Class 10 students in the urban field practice area, as well as the nature of their tobacco use, for the purpose of planning, improving and implementing adequate healthcare and preventive activities in high schools.

Materials and methods

Approval was obtained from the Institutional ethics committee of Bangalore Medical College and Research Institute.

Sample frame: The cross-sectional analytical study was conducted among the 10th std. students of urban field practice area of Bangalore Medical College and Research Institute, from July to November 2010. Out of the six high schools in our urban field practice area, five schools were selected by simple random sampling and all 10th std students from each of the schools were selected until the sample size was reached.

Sample size was calculation: Taking the prevalence of tobacco use among high school students as 29.2% [8] and considering a relative precision of 20%, the sample size was rounded off to 260.

Data was collected using a pre-tested structured, self-administered questionnaire, after obtaining permission from deputy director of public instruction, school authorities, informed consent from parents and informed assent from the students.

Data was analyzed using descriptive statistics and chi-square test. Statistical analysis was done using EpiInfo version 3.5.1.

Results:

The research involved 260 adolescents studying in Class 10th. There was a 94.2% overall response rate. Out of the 245 students who responded, 117(47.8%) were boys and 128(52.2%) were girls. Tobacco use in any form was classified as “ever-used” in the past, or “current use” (defined as used in the last 30 days).19.2% has “ever-smoked”. Out of those who “ever-smoked”, 31.9% first tried a cigarette at 12 to 13 yrs of age and 25.5% tried it at 14 to 15 years (Table 1).

Forty-four (17.9%) are current smokers, of which 35(79.5%) were boys and 9(20.4%) were girls. Forty-four (17.9%) of all the students are currently using smokeless forms of tobacco. There was

a statistically significant association between gender and tobacco use ($p < 0.001$) (Table 2) 61.3% of current smokers also use smokeless forms of tobacco (Table 3).

28.1% of the students had either father (/male guardian) or mother (/female guardian) or both who used some form of tobacco. There was a statistically significant association between students whose parents have used tobacco and tobacco use ($p < 0.001$) (Table 4).

Out of the current smokers, 43.2% have tried to quit smoking in the past twelve months (Table 5) 18% of all the students use smokeless tobacco in some form eg. Paan masala, gutkha etc. 50% of those currently using smokeless tobacco have tried to quit using within the past 1 year (Table 5).

41.6% have not been exposed to second-hand smoke, while 58.3% have been exposed to passive smoke at least once in the past week and 50.3% have been exposed to second hand smoke on all days of the past week.

Only 14.6% students' perceived smokers as successful / intelligent / confident / macho etc while 85.3% felt smokers were stupid or lacked confidence. 38.7% students who have seen actors smoking most of the time or always on screen, while 61.2% have rarely seen actors endorsing tobacco products. Only 46.9% students who have seen several anti-smoking media messages, 53.06% students have seen few or none. 70.6% students were aware smoking is harmful for health, and 29.3% students were not (Table 6).

Table 1: Age at which students first tried tobacco

Age	9 yr or below	10 to 11 yrs	12 to 13 yrs	14 to 15 yrs	16 yrs or above
First tried smoking	5(2.0%)	5(2.0%)	15(6.1%)	12(4.9%)	10(4.1%)
First chewed tobacco	5(2.0%)	1(0.4%)	4(1.6%)	12(4.9%)	4(1.6%)

Table 2: Prevalence of tobacco use among 10 std. students with respect to gender

	Yes		No	
	Boys	Girls	Boys	Girls
Ever tried smoking	35 (74.5%)	12(25.5%)	82(41.4%)	116 (58.6%)
Currently smoking	35 (79.5%)	9(20.5%)	82 (40.8%)	119 (59.2%)
Currently using smokeless forms of tobacco	32 (72.7%)	12(27.3%)	85 (42.3%)	116(57.7%)

Table 3: Students currently using tobacco with respect to students who currently use smokeless forms of tobacco

Current smokers	Currently use smokeless forms of tobacco	
	Yes	No
Yes	27(61.3%)	17(38.7%)
No	17(8.5%)	184(91.5%)

Table 4: Students currently using tobacco with respect to parents who use tobacco

Current smokers	Either or both parents use some form of tobacco		P value
	Yes	No	
Yes	22(50.0%)	22(50.0%)	.001
No	47(23.4%)	154(76.6%)	
Currently using smokeless forms of tobacco	Yes	No	.043
Yes	51(25.8%)	150(74.2%)	
No	18(40.9%)	26(59.09%)	

Table 5: Students currently using tobacco who have tried to quit smoking in the past 1 yr

	Have tried to quit in past 1 year	
	Yes	No
Current smokers	19(43.2%)	25(56.8%)
Currently using smokeless tobacco	22(50.0%)	22(50.0%)

Table 6: Perception of tobacco use among current smokers

	Current smokers	
	Yes	No
% of students who saw smokers as successful /intelligent/confident/macho etc	14.6%	85.3%
% of students who have seen actors smoking	38.7%	61.2%
% of students who have seen several anti-smoking media messages	46.9%	53.06%
% of students who know smoking is harmful for health	70.6%	29.3%

Discussion

Centers for Disease Control and Prevention (CDC)-Atlanta, World Health Organisation and Canadian Public Health Association started the Global Youth Tobacco Survey (GYTS) in 2000, the purpose of which was to globally monitor and estimate the problem of tobacco use among adolescents aged 13 to 15 years. Global Youth Tobacco Survey data on Indian states revealed the median prevalence 24.5% in 13-to 15-year-old male students [9]. In India, GYTS also found that 24.5% of students had ever smoked cigarettes (male = 31.9%, female = 15.5%); 54.7% currently use any tobacco product (male = 68.1%, female = 38.3%); 18.0% currently smoke cigarettes (male = 24.1%, female = 10.5%); 37.9% currently use other tobacco products (male = 45.5%, female = 28.6%) [10].

Compared to the GYTS study in India, the present study has a lower overall prevalence of 17.9%. This may be because students are reluctant to admit to tobacco use, despite the assurance of anonymity and confidentiality. Our study shows that 19.1% students have ever smoked (males=29.9%, females= 9.03%); 17.9% are currently smoking (males=29.9%, females= 7.03%); and 17.9% are currently using smokeless forms of tobacco (males=27.3%, females= 9.03%). The higher prevalence of smokeless forms of tobacco use among girls may be explained by the fact

that in India, paan chewing is socially acceptable, even among women. 61.3% of all current smokers also used smokeless forms of tobacco. The present study observes a lower prevalence of tobacco use among students especially among girls compared to the Western world: for example, the study by Cagulovic et al. in Kladovo, high school girls prevailed as smokers (29.8%) compared to boys (27.1%) [11]. There is a high prevalence of use of smokeless forms of tobacco in developing countries compared to developed countries.

In the present study it was found that majority of the current smokers started smoking at 12 to 13 yrs, while majority of those who currently use smokeless tobacco started the habit at 14 to 15 yrs. This is a higher age group than the age reported by Muttapallymyalil et al. whose study in Kannur found that more than 50% tobacco users started their habit at the age of 12 years; 38.5% of them started at the age of 13 years and remaining at the age of 14 years [12]. Current use was more among boys (80% current smokers are boys while 20% are girls). This is similar to a study done by Shenoy et al. in Mangalore among school students, who reported that 77.1% of current smokers are boys while 22.9% are girls [8].

25.8% of students currently using tobacco had history of either parent or both using tobacco in some form. This is similar to a study done by Singh et al. in Jaipur among school students, who reported that tobacco use in immediate family was significantly more among current tobacco users [13]. Thus family factors, especially parents using tobacco have an influence on the students' habits and the presence of negative role models within the home need to be seriously considered in any tobacco use prevention program. Almost 50% of the current users in the present study have tried to quit. This is a lower percentage than that seen in the study done by Singh et al. in Jaipur, who found that at least 75% had considered quitting [13]. Motivation to give up the habit is essential for de-addiction and rehabilitation of addicts. Lack of motivation is the reason for the high rate of relapse seen in de-addiction centres.

41.6% have not been exposed to second-hand smoke, while 58.3% have been exposed to passive smoke at least once in the past week and 50.3% have been exposed to second hand smoke on all days of the past week. This is higher than the exposure study by Jindal SK et al in four North Indian states, who observed that 11 to 34% students were exposed to passive smoke [14]. The increase in awareness of harmful effects of passive smoking must also be one of the objectives of

any proposed tobacco use prevention program. 70.6% of students were aware that smoking is harmful to health. This is lower than the awareness seen in the study done by Singh et al. in Jaipur who reported that 90% students were aware of harmful effects of tobacco [13]. This emphasizes the fact that health education regarding the hazards of tobacco smoking is essential among adolescents. In present study only 14.6% students perceived smokers as successful or intelligent or confident or macho while 85.3% perceived smokers as losers or stupid or lacking confidence. 46.9% students have seen several anti-tobacco messages on media and 53.06% have rarely seen such messages. This is similar to a study done by Singh et al. in Bihar who reported that more than 50% students saw anti-tobacco messages especially on TV [15]. Lack of knowledge of harmful effects of tobacco on health was negatively associated with tobacco use by current users. This compares with other data which indicates that awareness of harmful effects does not preclude tobacco use [16]. Therefore the current preventive message needs to be modified to make tobacco control more effective.

Conclusion

Even though tobacco use by small children is thought not to be culturally acceptable in India, the present study shows that at least 2% of current smokers initiated smoking or paan chewing at 9 years or below, and majority initiated by 12 to 13 years. Programmes for primordial prevention of tobacco use among adolescents must target high school students to prevent the long-term “tobacco-related” morbidity and mortality which has its onset in adulthood.

There is a necessity for strict implementation of healthcare and educational programmes among high school students. The programmes must be relevant for the age group of the students they cater to, and must emphasize not only on the harmful effects of tobacco use and abuse, but also aim at skill development to avoid initiation of use. This will help adolescents overcome the various pressures which tempt them into tobacco and other substance abuse.

The state must also strictly implement legislation, especially the provisions relating to prohibition of smoking in public places, prohibition of sale of tobacco products to minors and prohibition of tobacco advertising. The state must also increase budget allocation for these efforts and support medical workers in the implementation of preventive activities so that we are

able to ensure healthy school environments for our school children- in whose hands the future of our country lies.

References

1. Weinberg WA, Harper CR, Brumback RA. Substance use and abuse: Epidemiology, pharmacological considerations, identification and suggestions towards management. In: Rutter M, Taylor E. Child and adolescent psychiatry. 4th ed. Cornwall (UK): Blackwell Science Ltd. 2002; 437-8.
2. Hoare P. Essential child psychiatry. UK: Churchill Livingstone. 1993; 210-1.
3. Programming for adolescent health and development. Report of WHO/UNFPA/UNICEF Study group. WHO Technical report series 886, Geneva. 1999; 9-15.
4. Jessor R, Turbin MS, Costa FM. Risk and protection in successful outcomes among disadvantaged adolescents. Appl Dev Science. 1998;2:194-208.
5. Comerci GB, Schwebel R. Substance abuse: an overview. State of the art reviews. Adolescent medicine 2001;11:79-80.
6. Centers for Disease Control and Prevention (CDC). Tobacco use among middle and high school students United States, 2000-2009. MMWR Morb Mortal Wkly Rep. 2010;59(33):1063-8.
7. International Institute for population sciences (IIPS) and ORC Macro 2000. National family health survey 3, 2005-2006: Summary of findings, Mumbai.p.xii
8. Shenoy RP, Shenai PK, Panchmal GS, Kotian SM. Tobacco use among rural schoolchildren of 13-15 years age group: A cross-sectional study. Indian J Community Med. 2010;35(3):433-5.
9. Global Youth Tobacco Survey Collaborating Group. Differences in worldwide tobacco use by gender: Findings from the Global Youth Tobacco Survey. J Sch Health. 2003;73:207-15.
10. Global Youth Tobacco Survey Collaborating Group. Differences in worldwide tobacco use by gender: Findings from the Global Youth Tobacco Survey. J Sch Health. 2003;73:207-15.
11. Cagulovic T, Kocic B, Mihajlovic I. Distribution of smoking habit among school children and youth in municipality of Kladovo. Acta Med. 2009; 48(4):27-31.
12. Muttapallymyalil J, Sreedharan J, Divakaran B. Smokeless tobacco consumption among school children. Indian J Cancer. 2010;47(5):19-23.
13. Singh V, Gupta R. Prevalance of tobacco use and awareness of risks among schoolchildren in Jaipur. J Assoc Physicians India. 2006;54:609-12.

14. Jindal SK , Aggarwal AN, Gupta D, Kashyap S, Chaudhary D. Prevalance of tobacco use among school going youth in North Indian states. Indian J Chest Dis Allied Sci. 2005;47:161-6.
15. Singh G, Sarma PS, Sinha DN, Thankappan KR. Prevalance and correlates of tobacco use among 10-12 year old school students in Patna district, Bihar, India. Indian Pediatr. 2005;42:805-10.
16. Sinha DN, Gupta PC, Pednekar MS. Tobacco use in a rural area of Bihar, India. Indian J Community Med. 2003;28:167-70.