

A study on prevalence of tobacco consumption among school students studying from fifth to eighth standards and assessment of their risk behavior by studying their knowledge, attitude, and practices regarding tobacco consumption in Ahmedabad city, Gujarat, India

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Received July 8, 2015. Accepted July 21, 2015

Abstract

Background: Global Youth Tobacco Survey (GYTS) represented that the prevalence of tobacco by adolescents was around 19% in Gujarat. It shows the alarming statistics of tobacco use by adolescents.

Objective: (1) To study the sociodemographic profile of students (from fifth to eighth standards), (2) to assess the knowledge, attitude, and practices regarding tobacco consumption among them, (3) to study the prevalence of tobacco consumption among them, (4) to study the association between tobacco consumption and other variables and (5) to impart them health education regarding the hazards of tobacco.

Materials and Methods: A cross-sectional study was done by multistage sampling method from February 2013 to December 2014 after obtaining ethical consideration from the district education officer (DEO) and principals of the schools. According to the 14.6% prevalence of GYTS, the sample size was calculated, and 2,842 students from fifth to eighth standards from 18 schools of six zones of Ahmedabad were enrolled and studied using a predesigned, pretested, structured questionnaire. Health education session was organized by using audiovisual aids regarding the harmful effects of tobacco. The study was conducted, and data were analyzed by using appropriate statistical software.

Result: Of the 2,842 students, 69.1% of them were aware that tobacco is hazardous to health and 26.3% students knew that passive smoking is harmful. One-fourth of them were aware about antitobacco messages. Regarding attitude, more than one-third of the students believed that tobacco consumption makes one smart and helps in making a number of friends. If tobacco was offered free of cost, 14.5% were ready to use. Regarding their practices, the prevalence of tobacco use was 12.2%. The mean age of initiation was 11.66 ± 1.89 years. The mean number of pouches consumed per week was 1.8 ± 1.65 . About 35% students attempted to quit tobacco in the last 1 year and 47% were unable to quit.

Conclusion: Tobacco use is an important risk behavior among adolescents. Peer pressure was the most predominant risk factor for tobacco consumption.

KEY WORDS: Tobacco, school students, peer pressure, health education

Access this article online

Website: <http://www.ijmsph.com>

DOI: 10.5455/ijmsph.2016.0807201539

Quick Response Code:



Introduction

Tobacco use in different forms is one of the most common substance abuse indulged by adolescents worldwide. Nearly 6 million deaths owing to tobacco use occur every year, which may increase to 8 million deaths/year by 2030.^[1] In Gujarat, Global Youth Tobacco Survey (GYTS) represented the prevalence of ever-used tobacco by adolescents was around 19%.^[2]

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The survey also showed that 70% deaths will occur in the developing countries, mainly China and India.^[3,4] The young people are the most vulnerable segment, and adolescence is found to be the most susceptible time for initiating tobacco use.^[5] It was estimated in 1999–2001 that, approximately, 5,500 adolescents, some as young as 10 years old, start tobacco use every day in our country, and nearly 4 million young people younger than 15 years are already consuming tobacco regularly.^[6,7] In India, the most common form of tobacco use is “bidi” and used in the form of hookah, panmasala or gutkha, chutta, mishri, and khaini.^[8] Tobacco kills between 8 and 9 lakhs people each year, which will multiply many folds in the next 20 years.^[9] The WHO define “adolescents” as persons who are in the 10–19 year-age group.^[10] Adolescents constitute one-fourth (22.8%) of the population of India.^[11] In Gujarat, GYTS data represented that the prevalence of ever-used tobacco (any form) in adolescents was around 19.0%.^[2] In Ahmedabad city, the proportion of students currently using any tobacco products was 14.5%.^[2] The alarming statistics of tobacco use by adolescents motivated us to carry out a baseline survey study on tobacco use among adolescent-school students, understanding their knowledge of adverse effects and attitude toward tobacco use among them, which would help to plan and implement various methods of awareness programs in the school to save the youth from the clutches of this evil addiction.

Objective

(1) To study the sociodemographic profile of school students (fifth to eighth standards), (2) to assess the knowledge, attitude, and practices regarding tobacco consumption among them, (3) to study the prevalence of current and ever-use of tobacco consumption among them, (4) to study the association between tobacco consumption and other associated variables, and (5) to impart them health education regarding hazards owing to tobacco consumption.

Materials and Methods

A cross-sectional study was carried out by multistage sampling method and sample size determined by using the prevalence of tobacco consumption. According to GYTS, it was 14.6%;^[2] a sample size of 2,247 was calculated. Finally, 2,842 students studying from fifth to eighth standards from 18 schools of six zones of Ahmedabad, Gujarat, India, were enrolled in this study to determine the prevalence of tobacco consumption and its determinants by using a predesigned, pretested, structured questionnaire containing sociodemographic profile of the students; their knowledge, attitude, and practice; factors affecting tobacco consumption; quitting of the addiction; and influence of family members, teachers, and friends on tobacco use. Health education session was organized by using audiovisual aids regarding the harmful effects of tobacco consumption and to motivate them to quit tobacco

or not starting any form of tobacco. Data were analyzed by using appropriate statistical software at 5% level of significance. The study was conducted from the period of February 2013 to December 2014, after obtaining ethical consideration from the district education officer (DEO) and principals of the schools by considering them as a legally acceptable guardian.

Result

There are a total of 480 schools (325 primary municipal and 155 grant-in-aid schools) in Ahmedabad city. From these, 18 schools were sampled, and 2,842 students in the age group 10–15 years were studied. There were 58% male and 42% were female students. The majority (41%) of the students were in the 12–13 years age group, followed by 10–11 years age group (31%). Over half the number of students (53%) was studying seventh and eighth standards. About 58.4% of students were from municipal schools and the rest from grant-in-aid schools.

Regarding knowledge of the students, tobacco is hazardous to health was known to 1,963 (69.1%) students. Passive smoking, which is also harmful, was known to 748 (26.3%) students. Nearly one-third (884) of all students were exposed to passive smoking during their entire life. Of them, 71 students were exposed to passive smoking inside their home. Another 813 students were exposed to the same outside their home. The awareness of tobacco products that were available near their school was known to 1,527 (53.7%) students. Antitobacco messages were known to 758 (26.7%) students, and 1,039 (36.6%) students had read the warning written on tobacco products [Table 1].

Regarding the attitude of the students, the majority (94.5%) of the students believed that tobacco consumption is forbidden in a public place. One thousand (35.2%) students believed that tobacco consumption led to an increased number of friends.

It is observed that 16.2% of boys and 6.5% of all girls were already consuming tobacco in one form or the other, but another 3.3% of boys and 1% of girls would like to use tobacco in near future. It is a matter of concern that, if tobacco products are offered free of cost, about 19.6% of boys and 7.4% of girls would like to consume it [Table 2].

The overall prevalence of tobacco was 12.2% [Table 3]. While it was 16.2% among all the male students, it was 6.5% in the female students. Tobacco consumption was 3.5 times more prevalent in boys when compared with girls (77.7% of consumers were boys and 22.3% were girls). The most prevalent form of tobacco use was practiced by nearly three-fourths (73.4%) of all consumers. Smokers constituted 18%, and 8.7% practiced the use of both the forms [Table 4]. While 91% of all girls and 68.4% of all boys were using smokeless forms, 21.6% of boys and 5.2% of girls were smokers among all tobacco consumers [Table 5]. The proportion of smokeless tobacco use increased with the increasing age in either sex [Table 6]. While it ranged from 6.7% at 10 years of age to 33.8% by the age of 15 years in male students, it ranged from

Table 1: Distribution of students according to their knowledge about various aspects of tobacco consumption

S. no	Knowledge-based questions	Male subjects (n = 1,659)		Female subjects (n = 1,183)		Total (n = 2,842)	
		Frequency	%	Frequency	%	Frequency	%
1	Students having knowledge that tobacco consumption is hazardous to health	368	22	380	32	748	26
2	Students having knowledge that they are exposed to passive smoking inside their homes	47	2.8	24	2	71	2.5
3	Students having knowledge that they are exposed to passive smoking inside their homes	462	28	351	30	813	29
4	Knowledge of the students that tobacco products are available near their school premises	933	56	594	50	1,527	54
5	Awareness of the students about antitobacco messages	484	29	274	23	758	27
6	Students who have read the written antitobacco warning on tobacco packet	674	41	365	31	1,039	37

Table 2: Distribution of students according to their attitude toward tobacco consumption

Attitude	Male subjects		Female subjects		Total	
	Frequency	%	Frequency	%	Frequency	%
Students believe that tobacco consumption should not be done on public places						
Can be consumed	74	4.5	11	0.9	85	3
Should not be consumed	1,540	92.8	1,146	96.9	2,686	95
Do not know	45	2.7	26	2.2	71	2.5
Total	1,659	100	1,183	100	2,842	100
According to students, tobacco consumption affects the number of friends of consumer						
Frequency of friends increases	662	39.9	338	28.6	1,000	35
Frequency of friends decreases	825	49.7	596	50.4	1,421	50
No change	172	10.4	249	21	421	15
Total	1,659	100	1,183	100	2,842	100
Students who want to start tobacco consumption						
Already consuming	269	16.2	77	6.5	346	12
Yes, in 1 month	4	0.2	2	0.2	6	0.2
Yes, in 6 months	20	1.2	3	0.3	23	0.8
Yes, in 1 year	31	1.9	5	0.4	36	1.3
No never	1,335	80.5	1,096	92.6	2,431	86
Total	1,659	100	1,183	100	2,842	100
Students who will consume tobacco if offered at free of cost						
Yes, of course	273	16.5	79	6.7	352	12
May be	51	3.1	8	0.7	59	2.1
No, never	1,335	80.5	1,096	92.6	2,431	86
Total	1,659	100	1,183	100	2,842	100

Table 3: Prevalence of current tobacco consumers

Tobacco	Male subjects		Female subjects		Total	
	Frequency	%	Frequency	%	Frequency	%
Consumers	269	16.2	77	6.5	346	12.2
Nonconsumers	1,390	83.8	1,106	93.5	2,496	87.8
Total	1,659	100	1,183	100	2,842	100

χ^2 -test = 60.84; *df* = 1; *p* < 0.0001.

Table 4: Age- and school-wise distributions of tobacco consumers

Age (years)	Municipal school			Grant-in-aid school			Total		
	Total students	Consumers	%	Total students	Consumers	%	Total students	Consumers	%
10	188	13	6.9	339	11	3.2	527	24	4.6
11	176	16	9.1	187	17	9.1	363	33	9.1
12	498	62	12.4	161	16	9.9	659	78	11.8
13	318	51	16	187	25	13.4	505	76	15
14	313	56	17.9	308	55	17.9	621	111	17.9
15	167	24	14.4	0	0	0	167	24	14.4
Total	1,660	222	13.4	1,182	124	10.5	2,842	346	12.2

χ^2 -test = 274.83; *df* = 12; *p* < 0.0001 (14 and 15 years were merged for χ^2 -test).

Table 5: Gender-wise distribution of the total number of students in each individual age group

Age (years)	Male subjects	Female subjects	Total
10	312	215	527
11	198	165	363
12	370	289	659
13	300	205	505
14	405	216	621
15	74	93	167
Total	1,659	1,183	2,842

2.3% to 10.8% in female students in the same age groups. Male preponderance was observed two to three times when compared with female students. This was highly significant. The overall smoking prevalence in boys was 5.1% when compared with 0.6% in girls. The prevalence in both boys and girls increased steadily with the increase in age. At the age of 15 years, 10.8% boys and 6.5% of girls were current smokers. The mean age of initiation of tobacco was 11.66 ± 1.89 years, and the median age was 11.23 years [Table 7]. However, the students initiated the use as early as 8 years of age in either sex. It is observed that nearly 25% of boys and 35% of girls has initiated tobacco use by the age of 10 years or less. This is an alarming fact that school children taste tobacco at such tender age and become addicted to it for life. The average daily expense on tobacco products of students was 11.2 ± 9.3 for both smokeless and smoking forms of tobacco [Table 8], even though 63% of students spend less than Rs. 10 per day (as majorities are from lower-middle class). Nearly one-third of boys and 33.8% girls spend Rs. 11 to 30 per day, whereas no students afford to expense more than Rs. 50 per day. This expenditure on tobacco is at the expense of good quality of nutritious food and academic material for the lower socio-economic groups, even though selling of tobacco products is strictly prohibited within 100 m radius around school. About 53.7% of students replied that tobacco products are accessible very close to the school premises. Of the total tobacco consumers, 35.4% of them have tried to quit tobacco [Table 9].

Half the number of consumers confessed that they are unable to quit.

Discussion

Tobacco is hazardous to health was known to 1,963 (69.1%) students. Antitobacco messages were known to 758 (26.7%) students, and 1,039 (36.6%) had read the warning written on tobacco products. In the studies by Roopa et al.^[12] and Shah et al.,^[13] 56.8% and 100% students, respectively, were aware that tobacco use may cause cancer. Shah and Jathal^[14] reported that 66% of students saw antismoking media messages in the last 30 days.

Regarding the attitude of the students, the majority (94.5%) of the students believed that tobacco consumption is forbidden in a public place. Similarly, in the study done by Kaur et al.,^[15] 79% of the respondents believed that smoking should be banned in public places. One thousand (35.2%) students believed that tobacco consumption led to an increased number of friends. Similarly, in a study, the effect of tobacco consumption on the number of friends was also reported by Shah and Jathal.^[14] (GYTS Report of Gujarat, 2003) in which 30% respondents believed that boys who smoke or chew tobacco have more friends.

The overall prevalence of tobacco was 12.2%. While it was 16.2% among all the male students, it was 6.5% in female students. There was a difference in the prevalence of current users of any tobacco products (12.2%) from previous GYTS India study result (in 2003–16.9% and in 2006–14.1%).^[16] In this study, the prevalence of current smokeless tobacco users was 284 (9.9%), while in the study done by Shah and Jathal,^[14] the prevalence rate was 13.6%. However, there was a marginal increase in the prevalence of current smokers [92 (3.2%)] when compared with 2.0% in the same study.^[14] In this study, the prevalence of tobacco use was higher in male than female students. Evident gender difference (male predominance) was also observed both in ever- and current-tobacco users by Shah and Jathal.^[14] and by Chadda and Sengupta.^[17] They mentioned that tobacco use is a

Table 6: Age- and gender-wise distributions of current tobacco consumers according to various forms of tobacco

Age (years)	Male subjects		Female subjects		Total	
	Frequency	%	Frequency	%	Frequency	%
Current smokeless tobacco consumers						
10	21	6.7	5	2.3	26	4.9
11	22	11.1	7	4.2	29	8
12	38	10.3	16	5.5	54	8.2
13	43	14.3	14	6.8	57	11.3
14	62	15.3	21	9.7	83	13.4
15	25	33.8	10	10.8	35	21
Total	211	12.7	73	6.2	284	10
$\chi^2 = 83.28; df = 15; p < 0.001$						
Current smoking tobacco consumers						
10	5	1.6	0	0	5	
11	7	3.5	0	0	7	1.9
12	18	4.9	1	0.3	19	2.9
13	18	6	1	0.5	19	3.8
14	29	7.2	3	1.4	32	5.2
15	8	10.8	2	2.2	10	6
Total	85	5.1	7	0.6	92	3.2
$\chi^2 = 16.60; df = 1; p < 0.0001$						
Currently consuming both forms of tobacco						
10	1	0.3	0	0	1	
11	2	1	0	0	2	0.2
12	4	1.1	0	0	4	0.6
13	7	2.3	1	0.5	8	0.6
14	9	2.2	2	0.9	11	1.6
15	4	5.4	0	0	4	1.8
Total	27	1.6	3	0.3	30	2.4

Note: percentages are computed from the total number of students in each individual age group and sex as shown in the reference table earlier.

Table 7: Practice of tobacco consumption

Age (in years)	What was your age of initiation of tobacco use?					
	Male subjects		Female subjects		Total	
	Frequency	%	Frequency	%	Frequency	%
8	19	7.1	7	9.1	26	7.5
9	20	7.4	7	9.1	27	7.8
10	26	9.7	13	17	39	11.3
11	45	17	13	17	58	16.8
12	56	21	16	21	72	20.8
13	53	20	10	13	63	18.2
14	37	14	5	6.5	42	12.1
15	13	4.8	6	7.8	19	5.5
Total	269	100	77	100	346	100

Mean age = 11.66 + 1.89 years; median age = 11.23 years.

Note: percentage computed from the total number of tobacco users in each sex group.

Table 8: Expenditure of students on tobacco products

Responses	Male subjects		Female subjects		Total	
	Frequency	%	Frequency	%	Frequency	%
Daily expenditure of students on tobacco products (rupees)						
<10	173	64.3	46	59.7	219	63
11–20	54	20.1	11	14.3	65	19
21–30	27	10	15	19.5	42	12
31–40	13	4.8	5	6.5	18	5
41–50	2	0.7	0	0	2	1
>50	0	0	0	0	0	0
Total	269	100	77	100	346	100

Mean = Rs. 11.09 ± 9.3.

Table 9: Distribution of students regarding quitting from tobacco addiction

Have you attempted to quit tobacco any time in the last 1 year (n = 346)						
Responses	Male subjects		Female subjects		Total	
	Frequency	%	Frequency	%	Frequency	%
Yes	82	30.4	41	52.6	122	35.3
No	50	18.6	13	16.7	63	18.2
Unable to quit	137	50.9	24	30.8	161	46.4
Total	269	100	77	100	346	100

male-predominated phenomenon among adolescents in India. In Russian Federation, Sri Lanka, and Ukraine, smoking was found to be more common among boys than in girls, whereas, it was more common among girls in China, Fiji, Jordan, and Venezuela as reported by Warren et al.^[18] In this study, 10–14 years was found to be the most common age group (79.2%) for initiation of tobacco consumption among current tobacco users. While Gavarasana et al.^[19] and Roopa et al.^[12] mentioned that 64% of users started this habit in 10–12 years of age, and similarly, Singhi et al.^[20] mentioned that 80% of users started this habit in the age of 10–14 years. Of the total tobacco consumers, 35.4% have tried to quit tobacco. Half the number of consumers confessed that they are unable to quit. Sargent et al.^[21] reported in their study that only 25.7% of current smokers wanted to quit smoking, whereas in GYTS India,^[16] 70% of current smokers wanted to quit smoking.

Recommendations

Antitobacco education should be started from the beginning of the primary school and should be reinforced every year. Tobacco Control Manual for schools developed by the WHO translated in local vernacular language should be used in all Gujarati-medium schools. Antitobacco use cessation program should be implemented at the school level. Extracurricular

activities such as celebration of “World No-Tobacco Day,” tobacco control photograph exhibition, essay writing competition, etc., should become an essential component of school activity. Strict enforcement of law banning the sale of gutkha and other chewing/smoking tobacco products in the vicinity of school premises and strict implementation of ban on the sale of tobacco products to minors should be followed.

Conclusion

In this study, 2,842 students were selected in the 10–15 years age group (1,659 male and 1,183 female students). While 69.1% students were aware that tobacco is hazardous to health, 26.3% students also knew that passive smoking is also harmful. About 26.7% students were aware about antitobacco messages, and the written warning on the tobacco products was read by 36.6% of them. Over one-third of students believed that tobacco consumption makes one smart and helps in making a number of friends. If tobacco was offered free of cost, 14.5% of them were ready to use. The overall prevalence of tobacco use was 12.2%. It was 13.4% in municipal schools when compared with 10.5% in the grant-in-aid schools. The prevalence of tobacco use among male students was 16.2% and among female students, it was 6.5%. Smokeless tobacco (chewing) was the most prevalent form

of tobacco use. About 91% of the total users among girls and 68.4% of the total male tobacco users were chewers. About 21% male users and 5% female users were smokers. About 10% of the boys and 4% of the female users were consuming tobacco in both the forms. Use of both the forms of tobacco and smoking was twofold to threefold more in boys when compared with girls. About 90% of tobacco consumers among girls were using chewing form. The mean age of initiation was 11.66 ± 1.89 years. Students initiated tobacco use as early as eight years in either sex. The mean number of pouches consumed per week was 1.8 ± 1.65 . Tobacco users spent on an average Rs. 11.2 ± 9.3 per day on these products. About 35% of students attempted to quit tobacco in the last 1 year; however, 47% replied that they were unable to quit. Nearly 30% wanted to quit tobacco for economic reasons and another 33% on family's instruction and for religious reasons.

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How to cite this article: Hirani DR, Balaramanamma DV. A study on prevalence of tobacco consumption among school students studying from fifth to eighth standards and assessment of their risk behavior by studying their knowledge, attitude, and practices regarding tobacco consumption in Ahmedabad city, Gujarat, India. *Int J Med Sci Public Health* 2016;5:191-197

Source of Support: Nil, **Conflict of Interest:** None declared.