Original Article

Tobacco use among school children in Chennai city, India

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Abstract

AIMS: The present study was done to build a database on prevalence of tobacco use among students of grade 8 to 10 in Chennai city, for the purpose of advocacy of tobacco control and planning tobacco control interventions and evaluation. **MATERIALS AND METHODS:** A two-stage stratified probability sample of students in grades 8-10 corresponding to 13 to 15 years of age were selected from private/government aided private schools and purely government aided corporation schools. Data was collected by a pretested, closed-ended self-administered questionnaire. **RESULTS:** A total of 1255 students participated in this survey. Among them 64.4 boys and 35.6% were girls. Ever tobacco use was reported by 37.6% of the students (41.6 males and 30.2% females). Current users of tobacco (any products) were reported by 41.1% of the students. Prevalence was more among boy students (46.3%) when compared to that of girl students (31.6%). There existed no significant difference between current users of tobacco based on the zones of the school. Tobacco users prevalence was found more in corporation schools when compared to that of private schools. Parental and friends tobacco use was reported more often by tobacco users compared to never users. Purchasing tobacco products in a store was reported by 82.5% and almost no one was refused because of age. Almost everyone reported watching a lot of cigarette advertisements on TV, whereas about half reported watching advertisements on other medias like outdoor hoardings (45.7%), newspapers (65.3%) and social events (67.4%). **CONCLUSION:** This study demonstrates that among the 13 to 15-year old school going children (corresponding to grades 8 to 10) in Chennai city, the current tobacco use is high.

Key words: Tobacco use, school children, tobacco control

Introduction

Tobacco is a major public health problem.[1] Given the current pattern of tobacco use globally, it is estimated that 250 million children and adolescents who are alive today, would die prematurely because of tobacco, most of them in developing countries.[2] Different counties have adopted various strategies for control of use of tobacco. The launch of the Tobacco Free Initiative of the World Health Organization (WHO) and subsequently Framework Convention on Tobacco Control was a major landmark in the history of tobacco control. Most countries have responded positively with initiation of many steps for tobacco control. However, for a cost effective planning and evaluation of control measures, it is important to have information on tobacco use status in all countries. South Eastern region of WHO is specifically facing with multiplicity of tobacco use modalities and comprehensive information on various aspects of tobacco use has not been well documented in this region.[1]

According to the WHO estimates, 194 million men and 45 million women use tobacco in smoked or smokeless forms in India.[3] In India, tobacco consumption is responsible for half of all the cancers in men and a quarter of all cancers in women, in addition to being a risk factor for cardiovascular diseases and chronic obstructive pulmonary diseases. India also has one of the highest rates of oral cancer in the world,

partly attributed to high prevalence of tobacco chewing. Forms of tobacco chewing include *pan* (piper betel leaf filled with sliced areca nut, lime, catechu and other spices chewed with or without tobacco), pan-masala or gutkha (a chewable tobacco containing areca nut) and *mishri* (a powdered tobacco rubbed on the gums as toothpaste).[4]

In India tobacco use is estimated to cause 800,000 deaths annually.[5] The World Health Organization predicts that tobacco deaths in India may exceed 1.5 million annually by 2020.[6] However, considerable research is required to comprehend the actual trends. Nationally representative and reliable prevalence data on tobacco consumption are scarce. Similarly, the sociodemographic predictors of tobacco smoking and chewing are poorly understood.[4]

The prevention of tobacco use in young people appears to be the single greatest opportunity for preventing non-communicable disease in the world today. In this era of globalization, youth and adolescents are adopting behavior patterns that are comparable from country to country. Tobacco companies are taking advantage of this situation. They are advertising tobacco products using mass media techniques targeting the youth of the world. To counteract the effect of this strategy in India, as in the rest of the developing world, there is an urgent need for good, scientifically sound data about tobacco use pattern that would allow cross-country and within-country comparison. This would permit the fulfillment of the dual objective of designing preventive strategies targeting "the global youth" while taking into consideration local peculiarities.[7]

The present study was done to build a database on prevalence of tobacco use among students of grade 8 to 10 in Chennai city. The above data can be used for the purpose of advocacy of tobacco control and planning tobacco control interventions and evaluation.

Materials and Methods

The present study was designed to find out the prevalence of tobacco use among 13 to 15 years old students (corresponding to grades 8 to 10) in the Chennai city. This study was carried out in July-August 2005. A stratified-random sample design was used to produce a representative sample of students. At the first stage, a list of all private/government aided private schools (private school group) and purely government aided corporation schools (corporation school) having grades 8 to 10 was prepared with enrollment numbers for boys and girls. The schools were grouped into three zones, namely North zone, Central zone and South zone schools, based on their location in the North, Central and South Chennai city respectively. At the second stage, one private/government aided private schools and one corporation aided schools was selected randomly from each zone of Chennai city. All students of grade 8 to 10 in the selected schools irrespective of age were eligible to participate.

Data was collected by a pretested, closed-ended questionnaire. The questionnaire was self-administered with no identification (name of the student, class etc). The questionnaire was designed in such a way that there was no skipping or branching pattern and hence required answering all questions.

Tobacco use was classified as ever use (the use of tobacco even once) and current use (use of tobacco within 30 days preceding the survey). In India tobacco is used for smoking as well as smokeless use. In Chennai city tobacco is smoked in the form of cigarettes, bidis and tobacco mixed with *ganja*. Smokeless tobacco use could include, betel quid, *gutka, khaini,* snuff etc. Lots of these habits are also common in other parts of India and have been described elsewhere.[8]

Attitudes towards tobacco use was also assessed in the present study.

Data analysis was performed using statistical package for social sciences. Pearson's Chi-square test was used to find any significant difference between ever and never users of tobacco based on the type of institution. Analysis was also done to find the difference in the type of tobacco used based on the type of institution. Ninety-five percent confidence intervals were calculated and used to test for significance of difference.

Results

A total of 6 sampled schools participated in this study and the schools' response was 100%. The students' response was 94.3% based on 1331 sampled students. The non-response was due to absence on the day(s) of the survey. A total of 1255 students participated in this survey. Among them 64.4 boys and 35.6% were girls.

Ever tobacco use was reported by 37.6% of the students (41.6 males and 30.2% females). Though there were no significant difference in ever smokers based on the zone of the school, there existed a highly significant difference between ever and never users of tobacco in the private school students ($P=0.00$). A significant difference was also seen among the never users of tobacco between the private and corporation schools.

This is shown in Table 1.

Current users of tobacco (any products) were reported by 41.1% of the students. Prevalence was more among boy students (46.3%) when compared to that of girl students (31.6%). There existed no significant difference between current users of tobacco based on the zones of the school. Tobacco users prevalence was found more in corporation schools when compared to that of private schools. The type of tobacco used by students based on type of the school and sex is shown in Table 2. Though use of smoking and smokeless tobacco was more prevalent among the boys than the girl students, use of smokeless tobacco was common among the girls when compared to smoking tobacco use. There existed a statistically significant difference based on the type of the tobacco used among the private and corporation schools. Among the smoking tobacco, cigarette was commonly used by both boy and girl students. Among the smokeless tobacco, *gutka* and pan masala were the most commonly preferred. Almost all cigarette smokers (94.1%), half of smokeless tobacco users among boys (60.4%) and 26.4% of girls reported needing tobacco the first thing in the morning.

Parental tobacco use was reported 2 to 3 times more often by tobacco users compared to never users. Use of tobacco by friends was reported 5 to 7 times more often by tobacco users than never users. Purchasing tobacco products in a store was reported by 82.5% and almost no one was refused because of age. Never users favored banning smoking in public places 10 times more often than cigarette smokers.

Among the tobacco users, 34.4% wanted to stop using tobacco, though majority (58.3%) were undecided. Among those who wanted to stop using tobacco, 53.6% had already tried but were not successful. Classroom teaching during the past year on various aspects of tobacco use, like dangers of smoking and chewing tobacco, reasons why people of their age smoke or chew and the effects of tobacco was reported by 19.4 and 34.6% of students from corporation and private schools respectively. Almost everyone reported watching a lot of cigarette advertisements on TV, whereas about half reported watching advertisements on other medias like outdoor hoardings (45.7%), newspapers (65.3%) and social events (67.4%). The latter included sport events, film award shows, cultural events etc.

Discussion

The data available on tobacco use by school children is weak, except in few developing countries. This study was initiated as a means of providing baseline data on

Table 1: Distribution of ever and never tobacco users based on sex and type of school

	Private school (n=803)						Corporation school (n=452)					
	Ever users*			Never users^			Ever users*			Never users^		
	No.	%	95% CI	No.	%	95% CI	No.	%	95% CI	No.	%	95%CI
Boys	178	35.1	31.02-39.34	328	64.9	60.66-68.98	160	52.3	46.69-57.88	146	47.7	42.12-53.31
Girls	61	20.5	15.94-25.13	236	79.5	74.87-84.06	73	50	41.89-58.11	73	50	41.89-58.11

P=0.00, *P*=0.6, **P* value for difference between ever users from private and corporation school is 0.16, ^*P* value for difference between never users from private and corporation school is 0.028

Table 2: Distribution of current tobacco users based on sex, type of school and type of tobacco product used

	Private school				Corporation school			
	Smoking tobacco* (%)	Smokeless tobacco^ (%)	Smoking and smokeless tobacco$ (%)	Total (%)	Smoking tobacco* (%)	Smokeless tobacco^ (%)	Smoking and smokeless tobacco$ (%)	Total (%)
Boys	94 (50.8)	41 (22.2)	50 (27.0)	185 (100)	72 (37.7)	70 (36.6)	49 (25.7)	191 (100)
Girls	21 (28.8)	34 (46.6)	18 (24.6)	73 (100)	15 (22.4)	35 (52.2)	17 (25.4)	67 (100)

P value for difference in the type of tobacco smoked is 0.00, *P* value for difference in the type of tobacco smoked is 0.04.

**P* value for difference in use of smoking tobacco between private and corporation school is 0.85.

^*P* value for difference in use of smokless tobacco between private and corporation school is 0.10.

$*P* value for difference in use of smoking and smokeless tobacco between private and corporation school is 0.92.

youth and their tobacco use.

This study demonstrates that among the 13 to 15-year old school going children (corresponding to grades 8 to 10) in Chennai city, the current tobacco use is high. These results are along the same line as those found in studies conducted in Gujarat,[7] Karnataka, Uttar Pradesh[1] and other North-Eastern states of India.[7] This is of concern since the younger the child starts using tobacco, the more likely are they become addicts and die from tobacco related diseases. Consequently, strategies to reduce initiation of tobacco use needs to be targeted more towards younger groups.

A majority criterion for tobacco is the interval within which a tobacco product is needed after getting up in the morning. In this study, majority of the tobacco users reported needing tobacco first thing in the morning, showing that children were already developing dependency on tobacco at a very young age.

Cigarette smoking outside the school campus was reported by a high proportion of the youth in the present study. It is not known whether this smoking was practiced in front of family members. Hardly any youth reported any difficulty in buying tobacco products despite their young age, indicating that laws restricting access to minors were not implemented adequate. The proportion of students who wanted to give up tobacco varied considerably. Similar variation was apparent in receiving help or advises to give up tobacco usage. This shows that programmes and interventions targeting young people need to expand their focus to include both prevention, initiation as well as offering youth cessation programmes.

There are several recent reports, predicting an increase in oral cancer incidence in India. This prediction is based upon the observation of an increase prevalence of oral submucous fibrosis, especially in younger individuals, caused by industrially manufactured smokeless tobacco products.[9,10] In the present study around 65.3 and 75.8% of the tobacco chewers reported chewing *gutka* and pan masala respectively, confirming the countrywide trend. *Gutka* is one of the most highly advertised products in almost all medias and it is noteworthy that tobacco users reported seeing more tobacco advertisements. Youth-targeted media advertisements and sport sponsorship influence the children's mind and help them initiate tobacco use in India.

In this study, similar to the other studies,[7] a strong association was seen between tobacco use and parental and friends use of tobacco products. These associations were also seen worldwide.[11]

Despite high prevalence of tobacco use, it should be noted that two out of three young students are non-tobacco users and they need to be protected from tobacco in homes and public places. Perhaps little can be done about exposure at home except to educate the public on the needs to restrict smoking at home for health reasons, but for preventing exposure in public places, the Supreme Court of India has already imposed ban legally on smoking in public places, along with ban on selling tobacco products to minors. This needs to be implemented vigorously, while the public needs to be informed about the dangers of environmental tobacco smoke.

In western settings, intervention programs have been successful, at least in delaying initiation of tobacco use. A comprehensive school tobacco control policy comprising a combination of tobacco-free school policies and an evidence-based curriculum linked to community-wide programs involving families, peers and organizations with counter-marketing campaigns and community-based activities have shown success in reducing tobacco in schools in USA.[12] There is greater potential for school-based awareness programs in Chennai city as well as the whole of India followed by cessation initiatives.

Conclusion

The findings of this study will help to design, implement and evaluate tobacco control and prevention programs in standard format. It also offers a unique tool to improve the information base on tobacco use among young people, which will support medium-term and long-term programming and advocacy actions for youth targeted tobacco control.

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