RESEARCH COMMUNICATION

Tobacco Use among Students and School Personnel in India

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Abstract

   Background: Tobacco usage is addictive and causative for several diseases and premature death. Concerted efforts by the individual and society are needed for control and for surveillance. The habit is initiated during early youth and this age group requires constant monitoring and timely appropriate action to curtail usage. The WHO FCTC has recommended actions to monitor and limit the tobacco use in young age groups. One of the actions is to examine the prevalence of tobacco habits in school children 13-15 years of age and of personnel employed in schools. Methods: WHO & CDC designed the study systems for Global Youth Tobacco Survey (GYTS) and Global School Personnel Survey (GSPS). In 2006 we conducted GYTS and GSPS in several parts of the country. The schools were chosen by strict sampling procedure and a well structured, self-administered questionnaire was used to obtain information on tobacco usage from 13 to 15 year old students of chosen schools and personnel of these schools. Results: Current use of any tobacco product was 14.1% among students (17.3% boys, 9.8% girls) and among school personnel it was 29.2%(35.0% males and 13.7% females). The prevalence was highest among male students in North East (34%) and the lowest was 4.9% among female students of western states. Cigarettes and Bidi smoking were more prevalent among boys. Smokeless tobacco use prevalence rate varied between 20% and 4.5% among boys and between 21.5% and 1.6% among girl students. Among male school personnel, the prevalence varied from 57.9% in NE to 25.7% in South. Among females 26.5% were tobacco users in the NE and in Western region it was 6.6%. Conclusion: It is essential to adopt forceful strategies, which are area specific, in order to undo the harm inflicted by tobacco use upon the individuals & society. Periodic surveys for surveillance of trends are essential to evaluate the outcome of programmes among students and school personnels.

Introduction

   India ratified the WHO FCTC on February 5, 2004 (World Health Organization, 2007). The WHO FCTC provides the driving force and blueprint to curtail tobacco-induced deaths and diseases through a coordinated action plan. An important feature of the WHO FCTC is the call for countries to establish programmes for national, regional, and global surveillance (Article 20) (World Health Organization, 2003). Research, Surveillance and Exchange of Information are integral components of FCTC. Among the important areas addressed by the WHO FCTC, strengthening education, communication, training and public awareness about the dangers of tobacco consumption are primarily focused in Article 12. Educators are specifically mentioned as important vectors of this information (World Health Organization, 2003).

   The World Health Organization (WHO), the U.S. Center for Disease Control and Prevention (CDC), and the Canadian Public Health Association (CPHA)

developed the Global Youth Tobacco Survey (GYTS) for youth, and the Global School Personnel Survey (GSPS) and the Global Health Professional Survey (GHPS) for adults as a part of Global Tobacco Surveillance System (GTSS) (Global Tobacco Surveillance System Collaborating Group, 2005).

   The purpose of the current study is to use the data from GYTS and GSPS conducted in 2006 in India to examine the present status of tobacco use among students and school personnel.

Methods

   The GYTS is a school-based survey of defined geographic sites, which can be countries, provinces, cities, or any other sampling frame including sub-national areas. The GYTS uses a two-stage cluster sample design that produces representative samples of students in grades associated with ages 13–15. The sampling frame includes all schools containing any of the identified grades. At

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the first stage, the probability of schools being selected is proportional to the number of students enrolled in the specified grades. At the second sampling stage, classes within the selected schools are randomly selected. All the students in the selected classes attending school on the day of the survey are eligible to participate. Student participation is voluntary and kept anonymous, by means of self-administered data-collection procedures. The GYTS sample design produces representative, independent, cross-sectional estimates for each site. For cross-site comparisons, data in this paper are limited to students aged 13–15 years old.

The GYTS and GSPS 2006 used self-administered, anonymous data-collection procedures. Names of schools or students or personnel were not collected and participation was voluntary. Trained and experienced personnel conducted the survey. The questionnaire was designed with no skip patterns to allow all respondents to answer all questions. The India GYTS and GSPS 2006 questionnaires were self-administered in classrooms, and school, class, student and school personnel anonymity was maintained throughout the GYTS and GSPS process. India questionnaire comprised a core set of questions asked in all countries and India-specific questions on bidi and smokeless tobacco. The final India questionnaires were translated into local languages and translated back into English to check for accuracy and pre tested.

Current use of tobacco for students was defined as use within 30 days of survey while current tobacco use/ current smoker for school personnel was defined by a complex variable definition from two questions (1) for ever used/smoked (Question 1) and (2) responded as daily or occasionally smoking/using tobacco now (Question 2).

A weighting factor is applied to each student record to adjust for non-response (by school, class, and student) and variation in the probability of selection at the school, class, and student levels. A final adjustment sums the weights by grade and gender to the population of school children in the selected grades in each sample site. SUDAAN, a software package for statistical analysis of correlated data, was used to compute standard errors of the estimates and produced 95% confidence intervals which are shown as lower and upper bounds (Shah et al., 1997).

India GYTS 2006 was performed region-wise, covering the Northern region, consisting of Chandigarh, Delhi, Haryana, Himachal Pradesh, Jammu and Kashmir, Punjab, Rajasthan, Uttaranchal and Uttar Pradesh; the Southern region consisting of Andhra Pradesh; Karnataka, Kerala and Tamil Nadu; the Eastern region consisting of Bihar, Jharkhand, Orissa and West Bengal; the Western region consisting of Goa, Gujarat and Maharashtra; the Central region consisting of Chhattisgarh and Madhya Pradesh and finally the North-eastern region consisting of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura. These regions represent 99.7% of India's total population. The school response rate was 96.7% and student response rate was 82.3%. In total, 12086 students from over 179 schools participated in the 6 regional surveys, with fieldwork completed during first half of 2006. The overall response was 81.8%.

The GSPS is a survey of all individuals working in schools selected to participate in the Global Youth Tobacco Survey (GYTS). All school personnel working in the selected schools were eligible to participate in the GSPS. The overall response rate was 80.6%. In total, 2926 school personnel participated in the 6 regional surveys, with fieldwork completed during the first half of 2006. The six regional GSPS have been combined into a national estimate to be identified as India GSPS 2006.

The report includes data from GYTS and GSPS 2006 data by region and country estimates.

Table 1. Prevalence of Current Tobacco Use Among Students Aged 13-15 Years, GYTS, 2006

Site	Any	Current smoking Cigarettes	Bidis	Current Smokeless Tobacco Use	Current Use of any Tobacco Products
India Overall	7.2 (6.0-8.6)	4.2 (3.4-5.1)	3.5 (2.7-4.6)	8.1 (6.5-10.0)	14.1 (11.9-16.7)
Male	9.7 (7.8-12.0)	5.9 (4.7-7.4)	5.1 (3.7-7.1)	9.9 (7.9-12.3)	17.3 (14.5-20.4)
Female	3.7 (2.9-4.8)	1.8 (1.1-2.8)	1.3 (0.9-1.9)	5.5 (4.0-7.7)	9.7 (7.2-12.8)
North	4.9 (2.5-9.1)	1.5 (0.7-2.8)	3.5 (1.6-7.4)	5.8 (3.1-10.7)	10.9 (6.6-17.5)
Male	7.5 (3.7-14.4)	2.4 (1.2-5.0)	5.7 (2.5-12.4)	7.7 (4.6-12.5)	14.5 (9.4-21.8)
Female	0.7 (0.3-1.7)	0.0 (-)	0.1 (0.0-1.0)	2.8 (0.6-12.9)	5.0 (1.4-16.3)
South	5.0 (3.2-7.8)	2.5 (1.3-4.7)	2.1 (1.2-3.6)	3.4 (1.8-6.3)	8.2 (5.4-12.1)
Male	6.2 (3.5-10.8)	3.6 (1.7-7.7)	2.5 (1.2-5.0)	4.5 (2.4-8.4)	10.3 (6.5-15.8)
Female	3.7 (2.4-5.8)	1.2 (0.4-3.5)	1.7 (0.9-3.1)	2.0 (1.1-3.8)	5.7 (3.8-8.6)
East	16.9 (14.4-19.7)	12.7 (10.2-15.8)	7.2 (5.2-9.8)	17.0 (14.1-20.5)	30.3 (27.0-33.9)
Male	21.5 (18.1-25.2)	16.5 (13.5-20.2)	9.6 (6.8-13.5)	17.5 (14.3-21.2)	32.4 (28.0-37.1)
Female	10.4 (8.0-13.3)	7.5 (4.6-11.8)	3.7 (1.9-7.2)	16.4 (12.3-21.5)	27.3 (23.0-32.1)
West	2.6 (1.1-6.1)	0.7 (0.3-1.6)	0.6 (0.3-1.1)	5.7 (2.1-14.5)	8.0 (3.3-18.0)
Male	2.7 (1.3-5.5)	1.2 (0.5-2.8)	0.7 (0.3-1.6)	8.7 (3.2-21.9)	10.2 (4.3-22.4)
Female	2.4 (0.6-8.9)	0.1 (0.0-0.6)	0.5 (0.1-2.9)	1.6 (0.6-4.1)	4.9 (1.6-14.1)
Central	9.8 (6.9-13.8)	4.8 (3.1-7.5)	6.7 (4.0-10.9)	14.4 (9.9-20.5)	21.4 (16.1-27.9)
Male	14.4 (10.0-20.2)	7.7 (5.1-11.6)	10.1 (6.0-16.4)	17.1 (11.0-25.5)	27.0 (19.5-36.2)
Female	2.2 (0.9-5.0)	0.2 (0.0-2.1)	1.2 (0.4-3.2)	9.8 (6.6-14.3)	11.9 (9.3-15.1)
Northeast	18.6 (14.1-24.0)	18.2 (11.8-27.1)	6.0 (4.3-8.3)	20.7 (13.7-30.0)	28.1 (20.4-37.4)
Male	26.7 (21.4-32.7)	28.0 (19.7-38.0)	9.2 (6.4-13.1)	20.0 (14.9-26.4)	34.0 (27.3-41.4)
Female	9.7 (5.9-15.3)	8.1 (3.4-18.5)	2.7 (1.1-6.3)	21.5 (11.0-37.8)	21.7 (12.7-34.4)

Table 2. Prevalence of Current Tobacco Use among School Personnel by Region and Sex, GSPS, 2006

| Site | Current Smoking | | Current Smokeless | Current Use of |
	Cigarettes	Bidis	Tobacco Use	Any Tobacco Products
India Overall	12.8 (11.1-14.7)	10.7 (9.3-12.3)	17.5 (15.9-19.4)	29.2 (27.0-31.5)
Male	16.9 (14.7-19.4)	14.2 (12.3-16.4)	19.7 (17.8-21.7)	35.0 (32.2-38.0)
Female	2.4 (1.6-3.8)	2.1 (1.2-3.7)	11.9 (9.1-15.4)	13.7 (10.6-17.6)
North	11.9 (9.4-15.0)	11.5 (8.4-15.7)	23.0 (19.8-26.6)	30.8 (27.4-34.4)
Male	16.9 (13.2-21.4)	16.1 (11.6-21.9)	23.9 (20.2-28.0)	34.9 (29.8-40.3)
Female	2.0 (1.1-3.6)	2.5 (0.7-8.8)	21.3 (15.4-28.6)	22.2 (16.0-29.8)
South	10.3 (7.1-14.8)	6.8 (4.3-10.5)	6.6 (4.0-10.8)	20.9 (14.6-28.9)
Male	13.1 (9.1-18.4)	9.2 (5.8-14.4)	7.5 (4.3-12.9)	25.7 (18.5-34.5)
Female	3.1 (1.1-8.7)	1.1 (0.2-6.2)	3.8 (1.2-10.7)	8.2 (2.9-21.5)
East	17.1 (12.6-22.9)	22.9 (18.0-28.5)	24.4 (20.3-29.1)	39.4 (34.8-44.1)
Male	19.1 (14.5-24.8)	25.3 (20.4-31.0)	27.0 (22.1-32.6)	43.1 (38.9-47.3)
Female	4.2 (2.1-8.2)	6.6 (2.8-14.7)	6.1 (1.8-18.7)	12.9 (6.9-23.0)
West	10.8 (8.7-13.4)	8.1 (6.2-10.5)	16.2 (13.0-19.9)	25.7 (22.6-29.1)
Male	14.7 (11.9-18.1)	10.8 (8.0-14.3)	19.6 (16.1-23.6)	32.4 (28.8-36.1)
Female	0.0 (- -)	0.7 (0.1-6.0)	6.6 (3.2-13.0)	6.6 (3.2-13.2)
Central	8.6 (4.4-16.1)	6.0 (2.6-13.3)	14.8 (9.9-21.5)	21.1 (16.2-27.1)
Male	13.1 (7.4-22.0)	9.6 (4.3-20.2)	19.4 (12.0-29.9)	29.3 (22.5-37.1)
Female	1.8 (0.3-11.4)	0.3 (0.0-2.6)	8.0 (5.2-12.1)	8.0 (5.2-12.1)
Northeast	30.2 (20.0-42.7)	13.3 (9.4-18.5)	50.3 (41.1-59.4)	50.3 (41.1(59.4)
Male	36.7 (20.3-56.8)	14.8 (9.7-22.0)	57.9 (40.8-73.4)	57.9 (40.8-73.4)
Female	10.0 (3.7-24.7)	8.8 (3.1-22.2)	26.5 (10.8-51.8)	26.5 (10.8-51.8)

Results

Global Youth Tobacco Survey, 2006

In Table 1 the percentage prevalence and its standard error of various forms of tobacco used by school students are shown.

In India, 7.2% of students (9.7% boys; 3.7% girls) currently smoked any tobacco (Table 1). Across the regions, current smoking any tobacco ranged from 5% or less in 4 regions to over 15% in the east and northeast regions. In north, east, central and northeastern regions the rate for boys was significantly higher than girls (Table 1) but in south and west regions there was no significant difference in current any smoking between boys and girls.

Current cigarette smoking rate for all India was 4.2%, with the rate for boys (5.9%) significantly higher than in girls (1.8% in all regions) (Table 1). Across the regions, current cigarette smoking ranged from less than 1% in west to over 18.2% in the northeast regions.

Bidi smoking was prevalent in 3.5%, with the rate for boys (5.1%) significantly higher than in girls (1.3%) (Table 1). Across the regions, current bidi smoking ranged from 0.6 % (West) to 6.2% (East).

Current use of smokeless tobacco products was 8.1% among students (9.9% boys; 5.5% girls). Across the regions, smokeless tobacco use ranged from 3.4% (south) to 20.7% in the northeast regions. Across the 6 regions there was no significant difference in current smokeless tobacco use between boys and girls.

Among students 14.1% currently used any tobacco products (17.3% boys, 9.75 girls). Across the regions, any tobacco use ranged from less than 9 % (west and south) to nearly 30% in the northeast regions. Across the regions there was no significant difference in current any tobacco use between boys and girls in five regions (north, south, west, central and north eastern) whereas in east region the rate for boys was significantly higher than girls.

In figure 1 and 2 the percentage prevalence of tobacco smokers, non-smoking tobacco users and any tobacco users among boys and girls are shown. The relative importance of non-smoking tobacco use in certain regions is apparent in this.

Global School Personnel Survey, 2006

In Table 2 the prevalence and its standard error of various forms of tobacco used by school personnel are shown.

Among school personnel 12.8% currently smoked cigarettes (males 16.9%, females 2.4%) (Table 2). Across the regions, current cigarette smoking ranged from less than 12.0% in north, south west and central regions to over 30% in the northeast regions.

In India, 10.7% of school personnel currently smoked bidi (14.2% males, 2.1% females) (Table 2). Across the regions, current bidi smoking ranged from less than 12.0% in north, south west and central region to over 22% in the east region.

29.2% of school personnel used any tobacco product with male habituees 35% and females 13.7%. Across regions 50% of school personnel in north east used some form of tobacco and the lowest prevalence of 20.9% was seen in south.

Among school personnel 17.5% currently used smokeless tobacco products (19.7% males, 11.9% females) (Table 2). Across the regions, current smokeless tobacco use ranged from 6.6% in south to 50.3% in the northeast region.

Among school personnel 29.2% currently used any tobacco products (35.0% males, 13.7% females) (Table 2). Across the regions, current any tobacco use ranged from 20.9% in south to 50.3% in the northeast regions. In east, west and central region the rate for males was significantly higher than females (Table 2) but in north, south and northeastern region there was no significant

Males

Females
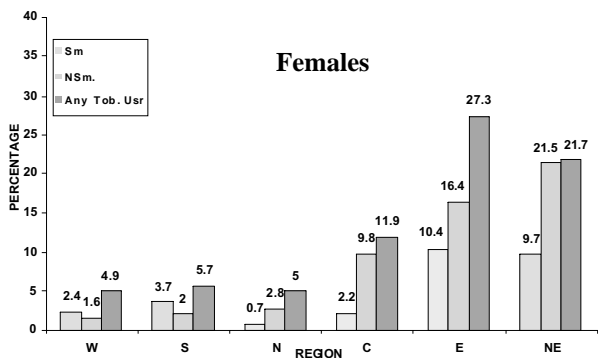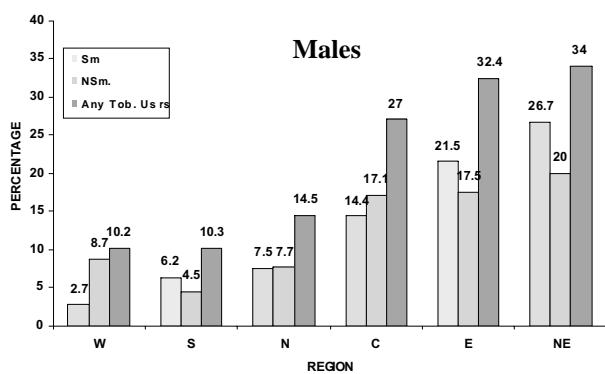
West S-South N-North C-Central E-East NE-North East

Figure 1 and 2. Percentage Prevalence of Smoking (Sm), Non Smoking Tobacco Use (NSm) and Any Tobacco Use among 13 to 15 year Students in India – GYTS 2006

Males

Females
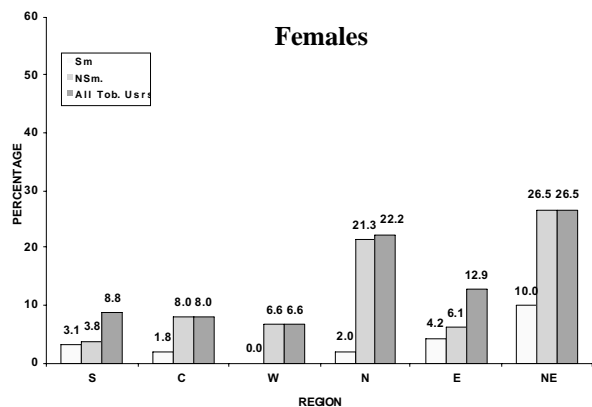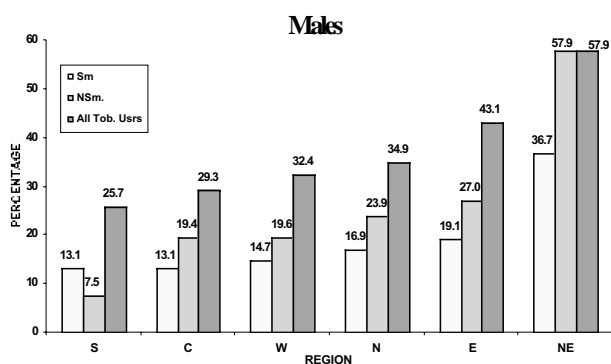
W-West S-South N-North C-Central E-East NE-North East

Figure 3 and 4. Percentage Prevalence of Smoking (Sm), Non Smoking Tobacco Use (NSm) and Any Tobacco Use among School Personnel (&) in India - GSPS-2006

difference in current any tobacco use between males and females.

Among different categories of school personnel, the prevalence of current use of any tobacco products ranged from 19.1% in any headmasters/principals to 45.7% in other teaching staff (the other categories consisted any teacher and office clerk).

In Figure 3 and 4 the prevalence of habit of smoking non-tobacco use and any tobacco use among males and females are shown. Any tobacco habit percent was double in north east male school personnel when compared to the prevalence in southern regions. A greater difference exists in female all tobacco use.

Discussion

The findings in this report are subject to at least three limitations. First the GYTS results do represent only school going population aged 13-15 years present on the day of survey. Second, GSPS sample design uses schools selected for the GYTS. Thus, GSPS is not an independent sample of schools and is dependent on the success of the GYTS. Fortunately, the GSPS school response rate has been greater than 80% in all sites. Third, findings are based on self-reports from school personnel who may under- or over-report their behavior and their knowledge of school policies. These limitation may affect the interpretation of results but perhaps only in a minor way.

Although as stated policy of all stakeholders including tobacco industry is that children should not use tobacco, in India across the six regions presented in this report, not a single site had a prevalence rate of current tobacco use equal to zero. Contrary to this ideal situation, the GYTS data documented here and in previous studies (Sinha et al., 2006; Sinha et al., 2003) show that tobacco use prevalence among students is quite high. As compared to other regions of the world, in India current cigarette smoking is on lower side (The Global Youth Tobacco Survey Collaborative Group, 2002;The Global Youth Tobacco Survey Collaborative Group, 2003) but current use of other tobacco products is the highest. Because of the deadly and addictive nature of tobacco products, and the high prevalence of its use among young people, it is clear that we need to change the ways in which tobacco products and their use are viewed by society, so as to begin to treat these products commensurate with the harm that they cause. Further, for India, the age group 13-15 that is currently in school represents 3% of population goes in terms of 33 million children. Among this at least 6 million currently use some form of tobacco. As the prevalence among out of school children is higher (Efroymson and Fitz, 2003), the non-school going group harbours more high-risk situations and this would enhance the total population estimates for tobacco related morbidities.

Use of tobacco products among youth in India presents a unique situation. The use of any form of tobacco by 13-15 year old students was greater than 20% in three regions presented in this report. Students reported using for various types of tobacco products, like bidi and various types of smokeless tobacco like Gutka, Pan Masala, Khaini etc

In the present study, it was observed that tobacco use prevalence differed three-fold between the sites; highest rate was seen in northeastern region and lowest in west and in northern region. This is in concordance with previous round of GYTS which was conducted state wise and more conspicuous inter state difference was observed for current use of any tobacco product (62.8% in Nagaland, to 3.3% in Goa ,7). Such wide variations in responses within a country underscore the importance of sub-national data, and how national estimates can obscure important regional differences. This variation presents challenges and requires careful planning to develop, implement, and evaluate meaningful tobacco control programs. The prevalence and pattern of tobacco use variations seen in the country suggest that serious attention needs to be given to the development of country-specific tobacco control programs.

School personnel are role models for student, youth and public. The GSPS data document that tobacco use prevalence among school personnel is pretty high in India . Over three in 10 male and over one in 10 female school personnel are current tobacco users in India.

Equal female male ratio in current tobacco use among school personnel in 3 of 6 regions and among students in 5 of 6 regions is an indication of future increase in tobacco use in India. The results dispel the myth of tobacco use as taboo among middle class women and girls in India in so far as self administered, anonymous questionnaires revealed nearly 10% of girl students and over 10% of female school personnel reported current tobacco use. This social change is likely to be due to several factors such as female emancipation and role modeling from western media. The role of marketing strategies by cigarette companies however, cannot be underestimated. Almost all cigarettes and smokeless advertising imagery includes women and a cigarette and smokeless brand specially targeted at women with the name "Ms" is available in Indian market.

Despite minor limitations, the data clearly point out the extent of tobacco problem in India and the potential for its becoming a bigger problem in view of decreasing male female differences in use. This situation would certainly lead to a rise in tobacco related morbidity and mortality in India. The current study supports other similar studies (Warren et al., 2006). School level training and information dissemination for all anti tobacco activities should be initiated in school level curriculum. This would also have the school personnel to discard the habit if habituated to the use of tobacco.

Acknowledgement

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