

## Research Article

# Prevalence of smokeless tobacco use among school going adolescent students of Raipur city Chhattisgarh state, India

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## ABSTRACT

**Background:** Tobacco consumption in various forms in recent years is a proven risk factor and contributes substantially to the emerging epidemic. Increasing tobacco use and its impact on physical and psychosocial health is a worldwide public health concern affecting the early youth and whole life of the individuals. Tobacco is used in different forms and health effects are seen irrespective of the form in which it is used. Smokeless tobacco is found to be as addictive and harmful as smoking. Objectives: To assess the prevalence and factors influencing smokeless consumption among high school students in Raipur city.

**Methods:** Study design: Cross-sectional, Study area: 16 selected high schools of Raipur city, in which 12 were government schools and 4 private schools. Study subjects: 1006 high-school students, Sampling technique: Two stage cluster sampling according to probability proportional to size, Study tool: Predesigned pretested questionnaire. Statistical analysis: Data was entered in Microsoft excel sheet and analyzed in Epi info 7 software.

**Results:** The mean age of students in the study was 15 years. The prevalence of smokeless tobacco consumption was 10%. Majority male 80.9% were users, mean age of initiation was 13 years (SD 7.07), Peer pressure (76%) was the reason for initiation. Pocket money 57.1% found to be the major source of purchasing. Strong association of family member tobacco use and promotional advertisement were found.

**Conclusion:** Study reflects smokeless tobacco use was prevalent among adolescent students and there is a need for targeted interventions to reduce the risk and deleterious consequences.

**Keywords:** Adolescent, Prevalence, Tobacco consumption

## INTRODUCTION

Tobacco use is one of the major preventable causes of morbidity and mortality in the world. It currently accounts for over 4 million deaths annually, which is projected to rise to 10 million by 2030, with 70% of these deaths occurring in developing countries. This will make tobacco the largest cause of death in the world.<sup>1,2</sup>

Tobacco is used in different forms and health effects are seen irrespective of the form in which it is used.

Smokeless tobacco is found to be as addictive and harmful as smoking. 'Gutka' and 'Pan masala with tobacco' are a common smokeless forms of tobacco use. Smokeless tobacco especially has been associated with various oral diseases including cancer and adverse reproductive outcome. Adolescent and young adults are the future of all generations. They are the most vulnerable population to initiate use of smokeless tobacco because of its easy accessibility and availability. This use in children and adolescents is reaching pandemic levels. It is now well established that most of the adult users of tobacco

products start using them in childhood or adolescence. Hence the present study is to determine the prevalence of smokeless tobacco forms and factor influencing it among school going adolescent students.

## METHODS

The present study was a cross-sectional observational study, conducted in 16 selected high schools (12 government, 4 private) of Raipur city (C G) India from December 2012 to March 2013. Two stage cluster sample design was used. In the first stage schools were selected according to probability proportionate to size and in the second stage classes were randomly selected, only one class including all section was selected, a total 1081 were interviewed. Prior informed consent from school authorities were taken, study tool were predesigned, pretested questionnaires.

### Working definition

1. Ever user: Person who used tobacco in any form even once in lifetime.
2. Current user: Person who used tobacco within 30 days preceding the survey.
3. Non-user: Those who never tried any form of tobacco in their lifetime.

### Data collection method

Data was collected by using an anonymous self-administered questionnaire. The anonymous self-administered questionnaires were distributed to the student of selected classes after explaining the purpose of study and the instructions to fill in the questionnaire. Considering the sensitivity of the issue, the school authority was requested not to be present in the class during filling of the questionnaire. One class period (45 min approx.) was provided to fill the questionnaire. Students were assured that information they provided would remain confidential and thus were encouraged to be truthful in their responses.

### Statistical analysis

Data was entered in Microsoft excel sheet and analyzed in Epi info 7 software. Chi square test were used for evaluating statistical significance of the association between the independent and the dependent factors, for all the tests, two sided P value <0.05 was considered significant.

### Ethical consideration

Study was approved by institutional ethical committee. Verbal consent was taken from all participating schools and students. The participation was completely voluntary.

Their right to refuse to participate in the study (if they wished so) was respected.

## RESULTS

School response rate was 100%. Overall 1081 questionnaires were distributed and of them 1061 were filled in and submitted by students. Of them 55 questionnaires were incomplete thus excluded from the study, finally 1006 were included for analysis. Students' response rate was 94%.

**Table 1: Socio demographic characteristics of adolescent students (n=1006).**

Characteristics	Frequency	%
<b>Age</b>		
12-15	670	66.6
16-20	336	33.3
<b>Sex</b>		
Male	436	43.3
Female	570	56.6
<b>Religion</b>		
Hindu	935	92.9
Muslim	25	2.4
Others	46	4.5
<b>School</b>		
Government	765	76
Private	241	24
<b>Grade</b>		
8	171	16.9
9	528	52.4
10	307	30.5
<b>Socioeconomic status</b>		
Upper high	26	2.58
High	80	7.95
Upper middle	103	10.23
Lower middle	164	16.30
Poor	633	62.92
<b>Father's education</b>		
Illiterate	141	14
Primary	190	18.8
Middle school	243	24.1
High school/secondary	239	23.7
Graduate/post graduate	193	19.1
<b>Father's Occupation</b>		
Unemployed	100	9.9%
Laborer	310	30.8%
Shopkeeper	299	29.7%
Service	273	27.1%
Professionals	24	2.3%

Out of 1006 subject 765 (76%) belongs to government schools & 241 (23.9%) were Private schools students. The mean age of students in the study was 15 years with SD (1.23). Out of 1006 student, 56 % females and 43% males were participated in the study. Majority students

797 (79.22%) belongs to low socioeconomic status, only 26(2.58%) were of upper high class socioeconomic status. Proportion of Hindus was maximum (92.9%) followed by other (Sikh Christian) 4.62% and Muslim 2.48%. Majority 47.8% students father were middle and high school graduate, 30.8% students father were laborer by occupation. Of the total students 1006, 16.9%, 52.4%, 30.5% were from Eighth, ninth, tenth grade respectively (Table 1).

**Table 2: Factors associated with smokeless tobacco consumption among users.**

Variables	Users (n=105)	Non-users (n=901)	P value
<b>Age (years)</b>			
12-15	56 (53.3)	614 (68.1)	<0.05
16-20	49 (46.6)	287 (31.8)	Significant
<b>Sex</b>			
Female	20 (19)	550 (61)	<0.05
Male	85 (80.9)	351 (38.9)	Significant
<b>Socio economic status</b>			
Upper high	0 (0)	26 (2.8)	
High	2 (1.9)	78 (8.6)	
Upper middle	6 (5.7)	97 (10.7)	Not done*
Lower middle	26 (24.7)	138 (15.3)	
Poor	71 (67.6)	562 (62.3)	
<b>Type of family</b>			
Joint	23 (21.9)	180(19.9)	>0.05
Nuclear	82 (78)	721(80)	
<b>School type</b>			
Government	93 (88.5)	672 (74.5)	<0.05
Private	12 (11.4)	229 (25.4)	Significant
<b>Family member use</b>			
Yes	79 (75.2)	500 (55.4)	0.01
No	18 (17.1)	359 (39.8)	Significant
Don't know	8 (7.6)	42 (4.6)	
<b>Promotional advertisement seen</b>			
Yes	78 (74.2)	542 (60.1)	<0.05
No	27 (25.7)	359 (39.8)	Significant
<b>Father's education</b>			
Illiterate	16 (15.2)	125 (13.8)	
Primary	26 (24.7)	164 (18.2)	
Middle school	28 (26.6)	215 (23.8)	
High school / secondary	24 (22.8)	215 (23.8)	>0.05
Graduate / post graduate	11 (10.4)	182 (20.1)	

\*Cell value less than 5, figure in parenthesis shows percentage

Out of total 1006 students 105 were using smokeless tobacco forms. The overall prevalence observed was 10%. Among 105 users 84 students were current tobacco users. Boys were more user than girls. Significantly higher proportions of users were from Government school than Private schools. Early and middle

adolescence, school type was significantly associated. No significant difference was found with religion, father education, type of family and socio-economic status. The mean age of initiation was 13 years (SD7.07) (Table 2).

Majority current users were consuming gutka/ panmasala (81%) followed by gudaku (13%), 4.7% were using multiple forms (Table 3). Peer influence was the main reason of initiation (76.1%) (Table 4). Pocket money 57.1% found to be the major source of purchasing. Strong association of family member tobacco use and promotional advertisement were found (Table 5).

**Table 3: Distribution of current users by type of use of smokeless tobacco.**

Tobacco products	Current user (n=84)	
	No.	%
Pan masala, gutka	68	80.9
Gudakhu/nasmanjan	11	13
Multiple forms	4	4.7
Others (pan with tobacco)	1	1.1

**Table 4: Distribution based on reason of initiation of tobacco.**

Reason of initiation	No.	%
Peer Influence	80	76.19
Self interest	15	14.28
Experiment	7	6.66
Other (non-specific)	3	2.85
<b>Total</b>	105	100

**Table 5: Distribution of user according to source of money for purchasing.**

Source of money	No.	%
Household money	12	11.4
Friends	15	14.2
Relatives	10	9.5
Pocket money	60	57.1
Own earning	8	7.61
<b>Total</b>	105	100

## DISCUSSION

The results of the present study indicate that the overall prevalence of consumption of smokeless tobacco was 10%. Boys were more frequent user than girls. The reason could be to the fact that boys level of exposure is more; friends is more whereas among girls there is family and societal binding and also socially unacceptable in India. The mean age of initiation was 13 years (SD 7.07), which is close to the finding in study by Singh V et al.<sup>3</sup> in Delhi. But, the finding is in the contrast to the study<sup>4</sup> which reported that, most regular user initiate at 15 years of age. This shows downward shift of age for initiation of

tobacco products. Ever use of smokeless tobacco products, was found to be more common in government schools in comparison to private schools, this findings are in accordance with the results of Mathur et al.<sup>5</sup> Low socio-economic status of government school students may be responsible for this, since being relatively inexpensive and readily available, these children often see tobacco as an alternative to food.<sup>6,7</sup> The present study was found significant association with age. Early and middle adolescents are more indulge in this habit; hence a target group is highlighted for early intervention to reduce the uptake of this habit. The reason for higher consumption of gutka and pan masala among students is because of its easy accessibility and availability and also more or less socially accepted for their age.<sup>8</sup> Similar finding is supported in study by Malhotra et al.<sup>8</sup>

The present study also reveals that peer influence as the commonest reason for initiation. The reason was supported by findings in the studies.<sup>9,10</sup> Bonding with friends is an important part of adolescent development<sup>11</sup> Strong association were seen with family member consuming smokeless tobacco. This is evidently supported by finding in study<sup>4</sup> with about, 63.9% of current tobacco chewers had family member consuming tobacco any forms. Advertisement of tobacco use promotion had strongly influenced the users than non-users as proved by the present study. Similar finding was seen in the study.<sup>12</sup> Although the advertisement of tobacco product in national electronic media (Radio, television) were already banned, in addition to this youth are being targeted through billboards, on city corner and through sporting event, music concert, other social events and gatherings that are sponsored by tobacco companies.

## CONCLUSION

The study reflects smokeless tobacco use was prevalent among adolescent students, despite the existence of ban to sale of gutka in the Chhattisgarh state. Banning only one tobacco product will not solve the problem. Strict implementation of legal measures should be supported by multipronged approach which should involve school teachers and parents to overcome this deadly habit.

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