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# Tobacco Use And Its Determinants Among High School Attendees: A Cross Sectional Study.

**Hemant Subhashrao Golhar[1], and Vaishali Praful Bansod[2]*.**

[1]Assistant Professor, Department of Community Medicine, Pratima Relief Institute of Medical Sciences, Warangal, Telangana, India.
[2]Assistant Professor, Department of Community Medicine, Bharatratna Atal Bihari Vajpayee Medical College, Mangalwar Peth, Pune, Maharashtra, India.

**ABSTRACT**

Tobacco consumption in its any form is the important preventable cause of death. Epidemiological studies have identified the adverse health effects of tobacco use. But a significant proportion of adults still smoke, and youth smoking rates are increasing. Thus, the present study was carried out to find magnitude of tobacco use and its determinants among high school students of 8th and 9th standard of rural area and to understand their knowledge and attitude towards tobacco use. Data was collected by conducting interview of participants with prevalidated questionnaire of World Health Organization pertinent to tobacco use and analysed using Epi info 7 and SPSS 12.0. Univariate and multivariate logistic regression was used to compare the variables and strength of association was expressed as Odds ratio and its 95% confidence intervals. 155 (38.75%) participants had ever used tobacco. Male gender, family history of tobacco use and friends consuming tobacco were found to have higher odds of tobacco use among participants. Health education for dangers of tobacco use, life skills, refusal skills, and media literacy in order to resist the influence of peers and better friend circle or peer group to be ensured to prevent the associated tobacco use.

**Keywords:** Tobacco use, determinants, high school attendees, a cross sectional study.

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**Corresponding author*

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## INTRODUCTION

Tobacco use is a major problem in developed as well as developing countries. tobacco use has significant public health burden to individuals, community and health care systems across the world [1]. The Global Adult Tobacco Survey (GATS) 2016 – 2017 shows that 28.6% of adults in India use tobacco in some form (smoking, chewing, application to the teeth and gums, or sniffing) [2].

According to Global Youth Tobacco Survey-4 (GYTS), 18.1% of students ever used any form of tobacco and 8.5% currently used any form of tobacco. 7.3% currently smoke tobacco and 4.1% use smokeless tobacco [3]. Epidemiological studies have identified the adverse health effects of tobacco use.

Thus, the present study was carried out to understand local epidemiology of tobacco use i.e. magnitude of tobacco use and its determinants among high school students of 8$^{th}$ and 9$^{th}$ standard of rural area and to understand their knowledge and attitude towards tobacco use.

## MATERIAL AND METHODS

Ethical approval was taken from institutional ethical committee. (MGIMS/IEC/COMMED/log/2015) dated 23/11/2015. The present study was a part of Postgraduate thesis. The cross-sectional study was carried out among children attending 8$^{th}$ and 9$^{th}$ standard in six high schools of a field practice area of Rural Health Training Centre of a Medical College. Written informed consent was taken from participants. Those students who were absent during the initial visit were again visited in the subsequent visits Considering 57% of tobacco use, the sample size of 400 was adequate at 5% of absolute error with 95% confidence interval. Data was collected by conducting interview of participants with prevalidated questionnaire of World Health Organization pertinent to tobacco use.

Data was analysed using Epi info 7 and SPSS 12.0. Magnitude of the tobacco use was expressed in percentage. To study the determinants of tobacco use univariate and multivariate logistic regression was used to compare the variables and strength of association was expressed as Odds ratio and its 95% confidence intervals.

## RESULTS

The results were shown in following tables and figure. 175 (44%) of the participants were 16 year old, 135 (34%) were 15 years of age, whereas 13 years and 14 years old participants were 67 (16%), 23 (6%) respectively; 204 (51%) of the participants were boys whereas girls constituted 196 (49%) of them; 102 (25.5%) of them were below poverty line (BPL) whereas 298 (74.5%) were above poverty line (APL). (Refer table 1)

**Table 1: Socio demographic profile of participants**

| Variables (n=400) | Frequency (%) |
|---|---|
| **Age** | |
| 13 years | 67 (16%), |
| 14 years | 23 (6%) |
| 15 years | 135 (34%) |
| 16 years | 175 (44%) |
| **Gender** | |
| Male | 204 (51%) |
| Female | 196 (49%) |
| **Socioeconomic status** | |
| BPL | 102 |
| APL | 298 |
| **History of Tobacco Consumption among family members** | |
| Yes | 336 (84%) |
| No | 64 (16%) |
| **History of tobacco addiction among friends** | |
| Yes | 193 (48.3%) |
| No | 207 (51.7%) |

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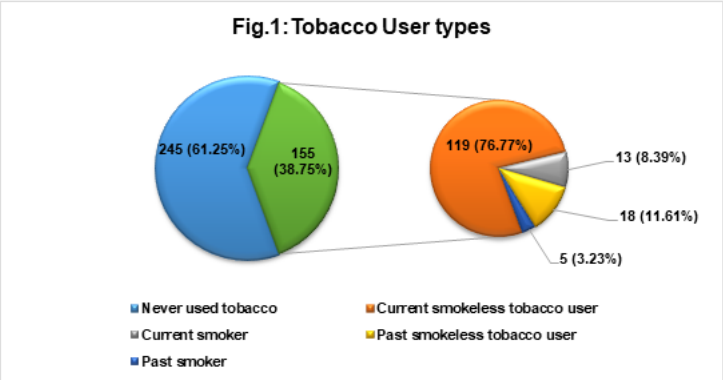
155 (38.75%) participants had ever used tobacco and 245 (61.25%) had never used tobacco products. Out of those who had ever used tobacco, current smoker were 18 (11.61%) and current smokeless tobacco like Gutkha, Kharra, chewable tobacco, snuff and betel nut coated with tobacco user were 119 (76.77%). (Refer figure 1)




Male gender, family history of tobacco use and friends consuming tobacco were found to have higher odds of tobacco use among participants. (Refer Table 2) Male gender, and friends consuming tobacco were found independent predictors of tobacco use among participants. (Refer Table 3)

**Table 2: Association of tobacco use with its determinants**

| Factors | | Tobacco users | Tobacco non-users | Odds Ratio | 95% CI |
|---|---|---|---|---|---|
| **Age** | 13 years | 18 (26.87%) | 49 (73.13%) | 0.571 | 0.211-1.548 |
| | 14 years | 46 (26.29%) | 129 (73.13%) | 0.554 | 0.225-1.368 |
| | 15 years | 46 (34.07%) | 89 (65.93%) | 0.804 | 0.323-1.997 |
| | 16 years | 9 (39.13%) | 14 (60.87%) | 1 | 0.306-3.268 |
| **Gender** | Male | 88 (43.1%) | 116 (56.8%) | 4.038 | 2.516-6.481 |
| | Female | 31 (15.81%) | 165 (84.1%) | 1 | 0.581-1.72 |
| **Socio-economic status** | BPL | 29 (28.43%) | 73 (71.57%) | 1 | 0.544-1.837 |
| | APL | 90 (30.20%) | 208 (69.80%) | 1.089 | 0.663-1.789 |
| **Education of Father** | Primary | 38 (30.16%) | 88 (69.84%) | 1.178 | 0.634-2.187 |
| | Secondary | 22 (26.83%) | 60 (73.17) | 1 | 0.501-1.995 |
| | Graduate & above | 59 (30.73%) | 133 (69.27%) | 1.21 | 0.679-2.154 |
| **Occupation of Father** | Labourer | 50 (30.13%) | 109 (69.87%) | 0.917 | 0.368-2.284 |
| | Farmer | 49 (25.79%) | 141 (74.21%) | 0.695 | 0.280-1.725 |
| | Service | 8 (33.33%) | 16 (66.67%) | 1 | 0.301-3.321 |
| | Business | 12 (44.44%) | 15 (55.56%) | 1.6 | 0.512-4.996 |
| **Family History of tobacco consumption** | Present | 108 (32.14%) | 228 (67.86%) | 2.282 | 1.146-4.544 |
| | Absent | 11 (17.19%) | 53 (82.81%) | 1 | 0.399-2.505 |
| **Friends consuming tobacco** | Present | 82 (42.49%) | 111 (57.51%) | 3.394 | 2.151-5.355 |
| | Absent | 37 (17.87%) | 170 (82.13%) | 1 | 2.151-5.355 |

**Table 3: Multivariate analysis – Logistic Regression (Backward LR method)**

| Factors | Odds Ratio | 95% CI | P-value |
|---|---|---|---|
| Male gender | 2.819 | 1.650-4.817 | <0.001 |
| Tobacco user friends | 2.184 | 1.296-3.682 | <0.003 |

In the present study, feeling fresh 83 (67.5%) and Peer pressure 78 (63.4%) were reasons given by tobacco users. (Refer Table 4) 349 (87.3%) of participants knew that tobacco products causes serious medical conditions, but 51 (12.7%) did not know that tobacco products causes serious medical conditions. 294 (73.5%) participants were in favour of an increase in taxes on tobacco products, whereas 106 (26.5%) were against it. 289 (72.3%) participants were in favour of a law prohibiting all advertising of tobacco products whereas 111 (27.7%) were against a law prohibiting all advertising of tobacco products. (Refer Table 5)

**Table 4: Reasons for tobacco use**

| Reasons | Frequency (N=123) | Percent |
|---|---|---|
| Peer pressure | 78 | 63.4% |
| Feel Fresh | 83 | 67.5% |
| Lack of knowledge | 6 | 4.9% |
| Health Problems | 22 | 17.9% |
| Family Members | 22 | 17.9% |
| Curiosity | 1 | 0.8% |
| Relieves Stress | 18 | 14.6% |
| Advertisement | 6 | 4.9% |
| Don't know | 21 | 17.1% |

**Table 5: Knowledge and attitude about tobacco use among participants**

| | Frequency (%) | |
|---|---|---|
| | Yes | No |
| knows that tobacco products causes serious medical conditions | 349 (87.3%) | 51 (12.7%) |
| In favour of an increase in taxes on tobacco products | 294 (73.5%) | 106 (26.5%) |
| In favour of a law prohibiting all advertising of tobacco products | 289 (72.3%) | 111 (27.7%) |

## DISCUSSION

In the present study 204 (51%) of the participants were males whereas females constituted 196 (49%) of them. All the participants were from rural area residing in the same village or nearby village of the schools. 102(25.5%) of them were below poverty line (BPL) whereas 298 (74.5%) were above poverty line (APL). Results were similar with the studies conducted in local setting by Narayan et al, where males were 245 (48.80%) and females were 257 (51.19%) [4]. According to the study conducted by Kirubakaran et al in peri-urban area of Villupurum, Tamilnadu 213(34.9%) were BPL and 384(62.9%) were APL [5]. Lower level of BPL participants in our study may be due to increase in the level of overall socio economic status, area of residence as all the villages from which these school were selected in this study were near from district place and situated in well to do region in the form of farming, industry, labors, technology etc.

In the present study 88 (43.1%) male participants were tobacco users whereas 31 (15.81%) females were tobacco users and male participants had higher odds of using tobacco than female participants. According to the study conducted in rural area of Wardha district by Dongre et al, About 68.3% boys and 12.4% girls had consumed any tobacco products in last 30 days [6]. Study done by Kumar et al also found that tobacco use among male students was significantly higher than female students [7].

High prevalence of smoking and smokeless tobacco use among both boys and girls in Maharashtra may be attributed to globalization and tobacco industry's advertisement. Looking at the above findings it can be observed that the tobacco use by females is increasing though the overall prevalence is decreasing, indicating that along with globalization and decreasing gender gap there is breakdown of cultural norms, and the tobacco use will be almost equal in both males as well as females in the near future which really an alarming situation on the public health prospective. It is eye opener for policy makers as well as public health experts that they need to focus on female tobacco control as well. Strategies need to be developed to reduce initiation of tobacco use among the adolescents age group.

In the present study, among ever used tobacco users, 13 (8.39%) were current smokers and 119 (76.77%) were current smokeless tobacco users. The much less percentage of smoking may be due to high cost of cigarettes which is not affordable to many participants. Also, the girls in this setting usually don't smoke which may be another reason for lower smoking prevalence. Tobacco use by adolescent especially by girls is not culturally acceptable in Indian society, which may be a reason for less prevalence of tobacco use among girls as compared to boys. Beyond these cultural norms, the gender gap in tobacco use is narrowing globally.

In present study, the odds of tobacco use were 2.282 (1.146-4.544) times higher among those users who had family history of tobacco consumption. Tobacco use is affected by various sociocultural factors, as evident from the study done by Mishra et al where 47.3% women used tobacco emulating the family elders using tobacco, 34% influenced by the use of tobacco in the community and 22.2% due to peer pressure [8]. In study done in Kerala by Muttappallymyalil among adolescent boys, common reasons for tobacco use were influence of friends, parents, teachers relatives and for fun [9]. Such evidence indicates a potential for improved health education in the community and schools through the mass media to inform current and future parents about the dangers of introducing children to health-damaging practices.

As we have studied tobacco use only in the age group of 13-16 years we didn't find it as important determinant for tobacco use. Studies done among school children showed mixed results. Study done by Chatterjee did not find association of age with tobacco use [10]. But age has been found to be an important determinant of tobacco use in other study [11]. In our study we did not find education as a significant predictor of tobacco use but education was reported one of the most important determinants of tobacco use irrespective of the type of tobacco use in study conducted by Berg [12]. According to study conducted by Singh et al uneducated males and females in India were at a higher risk of using tobacco [13].

In our multivariate analysis model we found that male gender and having friends who use tobacco were significant independent predictors of tobacco use. Males had higher odds 2.819 (1.650-4.817) of tobacco use when compared to females. Male had higher odds of tobacco use when compared to female. The odds was 2.819 (1.650-4.817) for male sex. Similar findings were reported by the study conducted by Sarkar et al in Gujrat and Andhra Pradesh where females had lower odds 0.78 (0.57-1.06) of tobacco use than male tobacco users [14]. There are many studies which have reported that the prevalence of tobacco use is more in males as compared to females but odds is not reported by any study [11,15]. A study done by Ahammed in Bangladesh and Aswathy et al in Kerala also found higher odds of tobacco use among male school students as compared to female students [16,17].

In our study we found that those students whose friends use tobacco had higher odds 2.184 (1.296-3.682) for the use of tobacco. According to study by Kirubakaran et al 31.8% peoples used tobacco because peoples around them were using it [5].

Peer pressure was an important reason for tobacco use, in the present study 63.4% of tobacco users had peer pressure for the tobacco use. 67.5% reported that they feel fresh after consuming tobacco. 17.9% users reported that they face health problems like constipation, toothache, pain in abdomen if they don't consume tobacco. According to the study conducted in rural area of Wardha district by Dongre et al, among boys, 51.2% consumed it due to peer pressure, 35.2% consumed tobacco as they felt better, and 5% consumed tobacco to reduce abdominal complaints and dental problem [6]. The reasons for the same could be increase in advertisement and easy availability of tobacco products at public places where peers meet or gather. According to study conducted by Kirubakaran et al 172 (96%) users reported that they have peer pressure for tobacco use [5]. Students they gather at places like tuition classes other than schools which is giving them opportunity to indulge in such practices due to more time spent with peers [18]. It was also

been observed that the addicted students had separate groups and they only allow to join their group if he or she is ready to consume those tobacco products may be in lesser quantity than others but which is the reason to start addiction [19].

In present study, 349 (87.3%) of participants knew that tobacco products causes serious medical conditions, 294 (73.5%) were in favour of an increase in taxes on tobacco products, and 289 (72.3%) were in favour of a law prohibiting all advertising of tobacco products. The study results were consistent with results of other similar studies [20,21].

## CONCLUSION

The family history of tobacco uses and friends consuming tobacco were driving forces for tobacco use among tobacco users. Steps to improve health education and better friend circle or peer group to be ensured to prevent the associated tobacco use. Other awareness generating activities in the community may help in improving the knowledge and attitude regarding the tobacco use and its harmful effects, bringing a positive behaviour change and reduce the associated stigma. School-based programs must include tobacco-free policies, training for teachers and programs for parents. Students must learn not only the dangers of tobacco use but life skills, refusal skills, and media literacy in order to resist the influence of peers.

### Limitation

Tobacco use was self-reported which might have brought in measurement bias. As study was done in rural area, the results cannot be generalized to urban area.

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