

## ORIGINAL ARTICLE

**A cross-sectional study of tobacco addiction among college students of Muzaffarnagar City**Khursheed Muzammil<sup>1</sup>, Sujit Singh<sup>2</sup>, Jai Vir Singh<sup>3</sup>, Sanjeev Davey<sup>2</sup>, Santosh Raghav<sup>4</sup>, Salman Khalil<sup>5</sup><sup>1</sup>Associate Professor, <sup>2</sup>Assistant Professor, <sup>3</sup>Professor & Head, <sup>4,5</sup>Assistant Professor cum Biostatistician.<sup>1-4</sup>Department of Community Medicine, Muzaffarnagar Medical College, Muzaffarnagar, U.P., <sup>5</sup>JNMC, Aligarh, U.P.

<a href="#">Abstract</a>	<a href="#">Introduction</a>	<a href="#">Methodology</a>	<a href="#">Results</a>	<a href="#">Conclusion</a>	<a href="#">References</a>	<a href="#">Citation</a>	<a href="#">Tables / Figures</a>
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**Abstract**

**Background:** Tobacco consumption in any form is the second major cause of death all over the globe. The mortality because of tobacco consumption is expected to double by the year 2025. Adolescents and college going students are the most vulnerable group that develop this bad habit of tobacco consumption. Every minute approximately 9-10 people die all over due to tobacco related diseases. Keeping all these in mind the research question of this study was set as -What is the prevalence of tobacco use amongst college students? **Materials & Methods:** A cross sectional study was carried out for a period of 2 months in the four colleges selected by simple random sampling. Prior permission was taken from all the head of the institutions of the respective colleges. A pre-tested self-structured questionnaire was filled by all the students present at the time of visit to their colleges. At the end of the visit, students were explained about the harmful effects of tobacco use in any form. A total of 248 students were ultimately included for the purpose of the study and their responses were analyzed by using Epi info statistical package. **Results:** Prevalence of tobacco use in any form among study subjects has found to be 19.76%. 22.81% of the male subjects and 12.99% of the female subjects were using smokeless tobacco (SLT). Only male subjects were found to be smoker (4.09%). Gutkha was found to be used most by the boys (61.54%). Nearly 77.78% of the boys and 50.87% of the girls knew about the lung cancer and oral cancer as the consequences of tobacco smoking and chewing respectively and this finding when compared has found to be statistically significant. Majority of the boys (93.57%) and girls (93.51%) responded on the need of complete ban on the tobacco companies. **Conclusions:** Awareness generation through health education is one of the important aspects for the control of tobacco use. Government and general public should make joint efforts to stop the production, sale and consumption of tobacco products.

**Key Words**

Tobacco products; tobacco use; peer effect; cancer; health education.

**Introduction**

Global cigarette production and consumption have been rising steadily since cigarettes were introduced at the beginning of the 20th century. It is estimated that about one-fifth of the global population are smoker. Despite persistent efforts by governmental, inter-governmental and non-governmental agencies to significantly reduce tobacco consumption, it has been on the rise. (1) Tobacco use takes the credit for the second major cause of death all over the world. The death toll due to tobacco use is expected to double by 2025 from the present 5 million deaths approximately. Every minute approximately 9-10 people die worldwide because of tobacco related diseases. (2) Most of the tobacco related

deaths are occurring in the developing countries, adding significantly to their burden of disease, poverty and economy.<sup>3</sup> Tobacco smoking and chewing is the main cause of lung cancer and oral cancer respectively. In developing countries like India, use of tobacco by men is 40-60% whereas in women it is 2-10%. (3) The use of tobacco, which is known to be a dependence-producing substance causing serious physical illness, is so widespread as to constitute a major public health problem; the fact that it does not have major psycho-toxic effects, even when consumed in large amounts, has allowed tobacco to become a socially acceptable drug. (4) The focus of WHO is to protect young people from experimenting with tobacco and becoming its regular

users, however, tobacco industry spends tens of millions of dollars worldwide every year to market its products. (5) Nearly 500 million young people between the ages of 10 and 24 years live in the WHO South-East Asia Region. They are aggressively targeted by the tobacco industry to make them take to the product early. According to various surveys, most people begin the use of tobacco before the age of 18 years; but almost a quarter of these young people start using tobacco even before the age of 10 years. These users are usually too young to understand the risk of addiction to nicotine and the tragic health consequences. Also, the younger they are when they first try tobacco, the more likely they are to become regular users, and the less likely to quit. (5)

There is substantial drop in number of smokers in US from a peak of 41% to its current level of about 25%. (6) this is because of the strong commitment of the US government and Indian government should also learn lesson from them for such a significant reduction in tobacco smoking. Scientific evidence has been accumulating since the early 1950's and more than 25 diseases are now known or strongly suspected to be causally related to smoking. (7,8) The Global Youth Tobacco Survey (GYTS), supported by the WHO and the Centers for Disease Control & Prevention (CDC), conducted during the year 2000-2004, is the first survey that provides data on school students which roughly corresponds to the age group of 13-15 years for national and international comparison with standard methodology. (9,10) However college appears to be a time when many students try a range of tobacco products keep themselves in danger of developing lifelong nicotine dependence. No such independent study to know the tobacco use rate in any form among the college students has been conducted so far in the newly formed state of Uttarakhand. Keeping this fact in mind the present study is an effort to get information from the college students regarding various aspects of tobacco use, its production and the youth's opinion to control this deadly social problem which is continuously rising and becoming a threat especially for the Indian Youth.

### Aims & Objectives

To find out the profile of tobacco use by college students of Muzaffarnagar City.

### Material and Methods

A cross-sectional study was carried out for a period of 2 months (i.e., from 1st October 2014 to 30th November 2014) in the four colleges selected by simple random sampling in Muzaffarnagar City. Prior permission was taken from all the head of the institutions of the respective colleges. Approval from the Institutional Ethical Committee (IEC) has already been taken before the start of the study. The college students (both Boys and Girls) were briefed about the purpose of the study and their participation in the study was voluntary and their consent was taken prior to the administration of the questionnaire

upon them. All the 271 students present on the day of survey had responded and out of which 23 students had given incomplete responses and therefore were excluded from the study. Thus, a total of 248 students were ultimately included for the purpose of the study. Students were not required to disclose their identity to ensure confidentiality and to elicit correct responses from them. The data was collected regarding their socio-demographic profile and various KAP aspects (knowledge, attitude and practice) of tobacco. All the 248 students were from Govt. Inter College, Muzaffarnagar City. A pre-tested self-administered close ended structured questionnaire was administered on all the students present at the time of visit to their colleges. At the end of the visit, students were explained about the harmful effects of tobacco use in any form. Criteria and definitions of tobacco use were based on WHO guidelines. "Ever use" was defined as having used tobacco even once in their lifetime. "Current use" was defined as having used tobacco at least once in the last 30 days preceding the survey. "Newer use" was defined as having not used tobacco even once in their lifetime. (11) **Statistical Analysis:** Mean, SD and test of significance (Chi-square) were applied wherever applicable to justify the significance of the data finding. The responses were analyzed by using Epi info statistical package.

### Results

In the present cross-sectional study, out of the total 248 students included in the study, 77 (31.05%) were girls and 171 (68.95%) were boys. The mean age of the study subjects and standard deviation were 22.6 ±3.1 years. The responses of the study subjects regarding various aspect of tobacco are as under-

The overall prevalence of tobacco use in any form among the study subjects has found to be 19.76%. The prevalence of smokeless tobacco (SLT) use among male and female study subjects is reported to be 22.81% and 12.99% respectively. The prevalence of tobacco smoking among male study subject is found to be 4.09% and no female student was in the habit of tobacco smoking. The prevalence of smokeless tobacco (SLT) use among male & female study subjects is reported to be 22.81% & 12.99% respectively. The overall prevalence of tobacco use in any form has been found to be 19.76% and when compared statistically it has found to be significant. (Table-1) Majority of the boys (76.92%) initiated tobacco smoking at ≥15 years of age. Most of the boys (58.97%) & 50% of the girls who started tobacco use just to company their friends. About 69.23% of the boys and 50.00% of the girls who use tobacco knew the harmful effect of tobacco smoking. Nearly 58.97% of the boys who use tobacco spent their pocket money for tobacco consumption and about 56.41% of the boys wanted to quit tobacco use. Gutkha has been found as the main form of SLT use among boys and after comparison the difference between the usage of different types of SLT use among boys & girls were found to be statistically significant. (Table-2) About

92.4% of the boys and 90.9% of the girls agreed in principle about the ban on tobacco product use at public places. Maximum boys (77.78%) & girls (59.74%) said lung cancer as the disease caused by smoking and this difference has found to be statistically significant. Surprisingly a significant finding has also been reported as only 50.87% of the boys and 83.12% of the girls knew oral cancer as the disease caused by SLT use. Majority of the study subjects were in favor of the ban on TPP (Tobacco Product Production), sale and its use. Only 13.45% of the boys & 18.18% of the girls stated that the steps taken by the Government to stop TPP, sale and its use are adequate. When compared, this difference has found to be statistically significant. Majority of the study subjects revealed that it is the responsibility of the Government and public both to stop / minimize the TPP, sale and its use. When compared, this difference has found to be statistically significant. (Table-3) Majority of the study subjects discourage others to consume tobacco in any form. About 59.85% of the boys and 86.57% of girls stated that tobacco is not a good thing to consume and this finding has found to be statistically highly significant ( $p < 0.001$ ). (Table-4)

## Discussion

Indian youth pass through a critical period when initiation and continuation of substance abuse takes place. Tobacco is used by the youth all over India with a wide range of variation by region, social customs, gender and form of tobacco consumption. Among them, college going students are particularly involved due to increasing academic pressures. The encouragement by peer groups, the lure of popularity and easy availability of many such substances like alcohol, tobacco (cigarettes and gutkha) and other drugs make a teenager an easy prey. The prevailing social environment has its own influence on tobacco consumption. (12)

A KAP study among college students was conducted at Bhavnagar City of Gujrat and it was found that the prevalence rate of tobacco consumption among college going female students was zero and smoking among male students was 13.70%, (6) however in our study smoking and tobacco chewing by the college going female students was found to be nil and 12.99% respectively. The tobacco use by girls and women is considered a taboo in Indian culture, and this rise in SLT consumption by female students is a serious concern. The habit of tobacco use is developed mainly from peer pressure, friends, and elders for fun. A study among college students conducted in Gujrat revealed that most of the students (34.2%) have started the habit for the sake of adventure followed by mental tension (25.4%), (6) however in our study, the main cause of tobacco use among male students has found to be as to company the friends (58.97%) and among female students it was found to be as 50% for the same. Most smokers initiate tobacco use during childhood and adolescence, 15 and this is consistent with the present

study showing that 76.92% of the males have started smoking in the age of  $\geq 15$  years. So, this is the time, we must take concrete steps to prevent the possible future deaths related to the tobacco consumption. In a study it was found that SLT use among college students was 14.2%, (6) however in our study, SLT use among boys and girls has found to be 22.81% and 12.99% respectively. In the same former study 59.6% of the students wanted to give up tobacco use, however in our study, 56.41% of the male and 50% of the female tobacco users wanted to quit tobacco use. In the same study 100% of the college students knew that smoking is injurious to health and cancer is caused by tobacco consumption however in our study this percentage is surprisingly quit less. In the same former study it was revealed that 82.2% of the students were in favor of banning tobacco products followed by health education and public awareness about the hazard of tobacco consumption (54.7%), banning of tobacco advertisement (44.3%) as control measures, however in our study, 93.57% of the boys and 93.51% of the girls were in favor of ban on tobacco product production (TPP), sale and its use. (6)

Government of Maharashtra has banned the production and sale of Gutkha and other state governments are also thinking to follow. But banning only one tobacco product will not solve the problem. (6) Higher cigarette prices discourages both smoking participation and the extent of smoking among the young adults. (13) The social acceptability of tobacco use contradicts the strong health education and health promotion messages discouraging it. This may require legislative steps banning the use of tobacco in the college campus, but more importantly, specific training and counseling of the students on a regular basis to help them overcome the desire to indulge in this deadly habit. (14)

For preventing exposure in public places, the existing law "The Cigarettes and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Act, 2003 No. 34 of 2003", needs to be implemented vigorously, while the public needs to be informed about the dangers of second-hand smoke. Smoking bans and restrictions are policies and regulations that ban or limit the consumption of tobacco products in designated areas. These include private business and employer policies, organization regulations, and government laws and ordinances. Laws and ordinances can establish minimum standards to protect workers in private-sector workplaces, as well as ban or restrict smoking in public areas and workplaces. (15)

The prevalence of tobacco use observed in our study could be an underestimation considering the fact that only 248 students were included in the study. There could be a possibility that users of tobacco would not have participated in the study despite the assurance of maintaining confidentiality of the information provided,

and hence all these goes towards the limitation of this study. Despite persistent efforts by governmental, inter-governmental and non-governmental agents to significantly reduce cigarette consumption, the ground reality is that consumption has been on the rise. There should be further strengthening of the efforts aimed at reducing tobacco consumption.

**Conclusion**

High prevalence of tobacco use among college going female students was alarming one. The knowledge and attitude of the students regarding various aspect of tobacco consumption was remarkably low. Peer effect was very much evident as the cause of tobacco use. Students opined that the Government and the mass should jointly combat this deadly hazard.

**Recommendation**

Literate youth of India are our future and we can't see our future to be in dark and for that legislation for tobacco control should properly be implemented, health education programmes should be given enough importance for the overall decline in the tobacco consumption and legal measures should be supported by public awareness campaign, only then it can make a dent in the problem.

**Relevance of the study**

The findings of this study are relevant in the sense that it will help/ assist the policy makers to modify the existing programmes/ services in order to curb down the problems due to tobacco use among the college students.

**Authors Contribution**

KM is responsible for designing, conduction, data collection and overall manuscript write up. SS, SD, RS helped in data collection and its interpretation. JVS are responsible for monitoring of the study. SR & SK are responsible for applying statistical tests.

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**Tables**

**TABLE 1 SOCIO-PREVALENCE OF TOBACCO USE IN ANY FORM AMONG SUBJECTS (N=248).**

Traits	Male (n=171)		Female (n=77)		Total (n=248)		p-value
	No.	%	No.	%	No.	%	
Tobacco users	39	(22.81)	10	(12.99)	49	(19.76)	> 0.05
Tobacco no-users	132	(77.19)	67	(87.01)	199	(80.24)	
Total	171	(100.00)	77	(100.00)	248	(100.00)	

**TABLE 2 RESPONSES OF THE TOBACCO USERS (N=49).**

Traits	Male (n=39)		Female (n=10)		p-value**
	No.	%	No.	%	
Age of starting smoking –					> 0.05
▪ < 15 years	09	(23.08)	05	(50.00)	
▪ ≥ 15 years	30	(76.92)	05	(50.00)	
Cause of tobacco use –					> 0.05
▪ To company friends	23	(58.97)	05	(50.00)	

▪ <b>For fun</b>	16	(20.51)	05	(50.00)	
<b>Type of tobacco use</b>					
▪ <b>Smoked tobacco</b>	07	(17.97)	00	(00.00)	
▪ <b>Smokeless tobacco</b>	39	(100.0)	10	(100.0)	
<b>Type of SLT use –</b>					
▪ <b>Gutkha</b>	24	(61.54)	05	(50.00)	< 0.05
▪ <b>Paan</b>	07	(17.95)	05	(50.00)	> 0.05
▪ <b>Khaini</b>	02	(05.13)	00	(00.00)	
▪ <b>Others</b>	06	(15.38)	00	(00.00)	
<b>Inspired by –</b>					
▪ <b>Friends</b>	26	(66.67)	05	(50.00)	> 0.05
▪ <b>Self</b>	13	(33.33)	05	(50.00)	
<b>Knowledge of harm due to tobacco use –</b>					
▪ <b>Present</b>	27	(69.23)	05	(50.00)	> 0.05
▪ <b>Absent</b>	12	(30.77)	05	(50.00)	
<b>Source of knowledge –</b>					
▪ <b>News paper</b>	24	(61.54)	05	(30.00)	> 0.05
▪ <b>TV</b>	11	(28.20)	05	(60.00)	> 0.05
▪ <b>Others</b>	04	(10.26)	00	(10.00)	
<b>Desire to quit tobacco use –</b>					
▪ <b>Present</b>	22	(56.41)	05	(50.00)	> 0.05
▪ <b>Absent</b>	17	(43.59)	05	(50.00)	
<b>Reason for not quitting –</b>					
▪ <b>Feel good/ relax</b>	31	(79.49)	05	(50.00)	
▪ <b>Others</b>	08	(20.51)	05	(50.00)	> 0.05
<b>Source of money –</b>					
▪ <b>Pocket money</b>	23	(58.97)	05	(50.00)	< 0.05
▪ <b>Friends</b>	16	(41.03)	05	(50.00)	

(\*SLT = Smokeless tobacco; \*\* Chi-square test, df= 1)

**TABLE 3 KNOWLEDGE & ATTITUDE OF PARTICIPANTS RELATED TO TOBACCO (N=248).**

Traits	Male (n=171)		Female (n=77)		p-value**
	No.	%	No.	%	
Agree with the ban on tobacco product use at public places-					
▪ <b>Yes</b>	158	(92.40)	70	(90.90)	> 0.05
▪ <b>No</b>	12	(07.64)	09	(09.10)	
Diseases due to tobacco smoking-					
▪ <b>Lung cancer</b>	133	(77.78)	46	(59.74)	< 0.05
▪ <b>Others</b>	38	(22.22)	31	(40.26)	
Diseases due to SLT use-					
▪ <b>Oral cancer</b>	87	(50.87)	64	(83.12)	< 0.05
▪ <b>Others</b>	84	(49.13)	13	(16.88)	
TPP*, sale & its use should be fully banned-					
▪ <b>Yes</b>	160	(93.57)	72	(93.51)	> 0.05
▪ <b>No</b>	11	(06.43)	05	(06.49)	
Steps taken by the Govt. to stop TPP, sale & its use are sufficient-					
▪ <b>Yes</b>	23	(13.45)	14	(18.18)	< 0.05
▪ <b>No</b>	148	(86.55)	63	(81.82)	
Responsibility of stopping/ minimizing the TPP, sale & its use is of-					
▪ <b>Govt.</b>	23	(13.45)	08	(10.39)	> 0.05
▪ <b>Public</b>	27	(15.79)	05	(06.49)	< 0.05
▪ <b>Both</b>	121	(70.706)	64	(83.12)	< 0.05

(\* TPP= Tobacco product production; \*\* Chi-square test, df= 1)

**TABLE 4 RESPONSES OF TOBACCO NON-USERS (N=199).**

Traits	Male (n=132)		Female (n=67)		p-value**
	No.	%	No.	%	
Reasons for not using tobacco-					
▪ <b>It's not a good thing</b>	79	(59.85)	58	(86.57)	< 0.001
▪ <b>Others</b>	53	(40.15)	09	(13.43)	
Discourage others to use tobacco-					
▪ <b>Yes</b>	115	(87.12)	59	(88.06)	> 0.05
▪ <b>No</b>	17	(12.88)	08	(11.94)	