

## Prevalence and predictors of tobacco use; a cross-sectional household survey in Aligarh District of Uttar Pradesh

Dixit S<sup>1</sup>, Ansari MA<sup>2</sup>, Khan Z<sup>3</sup>, Khaliq N<sup>4</sup>

<sup>1</sup>Assistant Professor, Department of Community Medicine, Veer Chandra Singh Garhwali Government Medical College, Srinagar, Garhwal, Uttarakhand, <sup>2</sup>Associate Professor, <sup>3&4</sup>Professor, Department of Community Medicine, Jawaharlal Nehru Medical College (JNMC), Aligarh Muslim University (AMU), Aligarh.

### ABSTRACT

**Background:** Tobacco is the leading cause of mortality and morbidity. WHO estimates one billion deaths in 21<sup>st</sup> century because of tobacco, if current trends of use continue.

**Methods:** The cross sectional survey was conducted over a period of one year among 848 individuals ( $\geq 15$  years) from urban and rural field practicing areas of the department of community medicine, JNMCH, AMU, Aligarh. Door to door survey was done. Households were the primary sampling unit. Data analysis has been done using SPSS version 14.0. To test significance chi square test have been used as applicable.

**Results:** 249 (29.4%) ever used smoked tobacco. Out of which, 224 (26.4%) respondents were current smokers and rest 25 (3%) were ever smokers. A total of 311 (36.7%) study subjects were found user for non smoked substances and out of these, 204 (24 %) were current users and rest 107 (12.7%) were ever users. A total of 422 (49.8%) subjects were found user (including current and ever user both) for any form of the tobacco products (either smoked, non smoked or both). Tobacco use was found significantly associated with socio-economic status, literacy level, parental tobacco use, parental education and male gender.

**Conclusions:** The study documented prevalence and predictors of tobacco use. The study population is at risk of tobacco related morbidity and mortality and needs action targeting the most vulnerable population. Health promotion, health education and behavior change communication as tools, can prove valuable for effective control of tobacco risk behavior.

**Key words:** Tobacco use, Determinants, Current tobacco user, Ever tobacco user

### Introduction:

To seek pleasure is man's innate nature. In his search for gratification, man has discovered a whole world of substances that intoxicated him. Man's innate nature and addictive quality of these substances has resulted in proverbial goliath structure of its use across the world. It will be not an exaggeration if we say that substance use disorders have taken the shape of a global pandemic led by Tobacco and Alcohol. Tobacco is the only legal consumer product that can harm everyone exposed to it and it kills up to half of those who use it as intended. Yet, tobacco use is common throughout the world due to low prices, aggressive and widespread marketing, lack of awareness about its dangers, and inconsistent public policies against its use. Tobacco is the single most preventable cause of death in the world today. This year, tobacco will kill more than five million people – more than tuberculosis, HIV/AIDS and malaria combined<sup>1</sup>. The total number of premature deaths caused by tobacco during the twentieth century has

been estimated at about 100 million and, if current trends of tobacco use continue during the twenty-first century, the death toll is projected to go up to one billion. The World Health Organization (WHO), which provides these estimates, also predicts that India will have the fastest rate of rise in deaths attributable to tobacco in the first two decades of the twenty first century. Many of these deaths will occur in the productive years of adult life, as a consequence of an addiction acquired in youth<sup>2</sup>. Considering all the social and economic repercussions associated with this social evil and understanding the need for data collection regarding prevalence and correlates, as a must, this study is an attempt carried out to find out the magnitude of tobacco use in urban and rural areas of Aligarh district.

### Material and Methods:

#### Sample size and sampling method:

This community based, cross sectional household survey was conducted during the period of August 2008

#### Address for Correspondence:

Sumeet Dixit, Assistant Professor, Dept. of Community Medicine, VCSG, Government Medical College, Srinagar, Uttarakhand.  
E mail ID: docdixit30@gamil.com

to July 2009. The sample size was calculated using  $p=50\%$ , as it will yield the biggest sample size<sup>3</sup>. Sample size has been calculated using the formula  $n = (1.96)^2 p q / L^2$ . Taking  $p$  as  $50\%$  and absolute error as  $5\%$ , the sample size was calculated to be 385. However the sample size was increased to 424, considering non response of  $10\%$  and also to undergird the validity. The study was carried out in both UHTC and RHTC registered field practicing areas. Sample size of 424 individuals was selected from both the places separately. Thus the effective sample size was 848 for the study.

### **Sampling procedure:**

A community based household survey was conducted in the registered areas of urban and rural health training centers. The estimated sample size calculated for the study was 424. All the villages and areas registered under Urban health training center and Rural health training center were included in the study and equal numbers of individuals were selected from both. The sample was taken from all individuals  $\geq 15$  years present in the household and who gave consent for the interview. To avert selection bias in the study a maximum of 2 eligible individuals were selected randomly from a single household. The number of households in the UHTC and RHTC were proportionately selected according to number of households of the respective registered areas or villages respectively. Systematic random sampling was used and to ensure the same, every tenth house was selected as sampling unit to carry out the study in the particular area. This method was followed till the requisite numbers of individuals were covered.

### **Study tool:**

A preformed and pre tested structured interview schedule was used for the study. The proforma was divided into 3 sections. The first section contained baseline information about the subject and his/her family. The second section contained information about ever use of any form of tobacco use amongst the two categories that is smoked tobacco, non smoked tobacco. The third section had questions for assessing pattern of tobacco use in each category.

### **Ethical Considerations:**

Informed verbal consent was sought from each family member. For adolescents aged 15-18 years, consent was obtained from both the parent and the individual. They were informed about the nature and the purpose of the survey, the procedure involved and the potential

risks and benefits. It was explained to the subjects that the information they give us will be kept confidential.

### **Definitions of tobacco use:**

**Current tobacco user:** if the respondent used the substance with in last one month period<sup>4</sup>.

**Ever tobacco user:** If the respondent ever used the substance in life time<sup>4</sup>. To be considered as smoker (ever or current) he should at least have smoked 100 of smoking units (cigarette/beedi etc), additionally<sup>5</sup>.

### **Data analysis:**

Data analysis has been done using SPSS version 14.0 and Microsoft Office Excel 2007. To test significance of correlates of substance use, chi square test have been used as applicable. All  $p$  values were two tailed and values of  $<0.05$  were considered to indicate statistical significance.

**Results:****Table-1** Distribution of Smoked Tobacco use among study population

Variable		Rural (N=424)				Urban (N=424)				Total (N=848)				Total Users (N=848)		Total Non Users	
		MALE (246)		FEMALE (178)		MALE (198)		FEMALE (226)		Male		Female					
Ever used		N	%	N	%	N	%	N	%	N	%	N	%	N	%		%
Smoked Tobacco	Current	97	88.9	08	100	101	88.6	18	100	198	23.3	26	3.1	224	26.4	-	-
	Ever	12	11.1	00	0.0	13	11.4	00	0.0	25	2.9	00	0.0	25	3.0	-	-
	Total	109	43.7	8	3.2	114	45.7	18	7.2	223	26.3	26	3.1	249	29.4	599	70.6

Out of 848 study subjects 224 (26.4%) were current smoked tobacco users and 25(3%) were ever user for the same [Table-1]. In most of the cases smoked tobacco was used in form of Beedi, cigarette and hukka.

**Table-2** Distribution of non-smoked tobacco use among study population

Variable		Rural (N=424)				Urban (N=424)				Total (N=848)				Total Users (N=848)		Total Non Users	
		Male (246)		Female (178)		Male (198)		Female (226)		Male		Female					
		N	%	N	%	N	%	N	%	N	%	N	%				
Non Smoked Tobacco	Current	69	71.8	27	75	55	56.7	53	64.6	124	14.6	80	9.4	204	24.0	-	-
	Ever	27	28.2	09	25	42	43.3	29	35.4	69	8.2	38	4.5	107	12.7	-	-
	Total	96	30.8	36	11.5	97	31.1	82	26.3	193	22.8	118	13.9	311	36.7	537	63.3

Likewise prevalence for current non smoked tobacco use was 24.0% and 12.7% of study subjects were ever used non smoked tobacco [Table-2]. Guthka, khaini and chuna were major forms of non smoked tobacco use. 422 (49.8%) participants were found to ever use any of the tobacco products. Rest 426(50.2%) study subjects told that they never indulged in tobacco use practices.

**Correlates of Tobacco use:**

Tobacco use (Both smoked and non-smoked) was significantly associated with low socioeconomic strata. Religion was insignificantly associated with smoked and non smoked tobacco although more prevalent

among Muslims. Tobacco use was seen to be significantly associated with parental tobacco use. The association seen between tobacco use and parental education comes out to be a significant for smoked tobacco and non smoked tobacco both. In the present study, gender comes out to be a strong predictor of tobacco use. This correlation is also very significant. Tobacco use was seen to be more prevalent among subjects who were unemployed, skilled or unskilled labourers as compared to subjects who were professionals or well paid and this relation comes out to be significant on statistical analysis too. Tobacco use was seen to be more prevalent in the individuals

who were illiterate or less educated. For smoked tobacco a total of 215 (86.3%) individuals were illiterate or educated up to high school (insignificant). For non smoked tobacco, this figure was 287 (92.3%) and this association was significant. It was also observed that prevalence of tobacco users was maximum in married individuals. 85.1% of smoked tobacco users, 80% of non smoked substance users were married. This relation

was significant for smoked tobacco, non smoked tobacco both.

Smoked tobacco use was slightly higher in urban areas (53.0%) as compared to rural areas (47.0%). Similarly, it was observed in the study, that use of non smoked tobacco was higher in urban areas as compared to rural areas (58.5% as compared to 41.5%). This relation was significant for non smoked tobacco and insignificant for smoked tobacco.[Table-3]

**Table-3** Predictors of Tobacco use (p <.05 are significant)

Correlate	Variable		Yes	No	P value (chi square test)
<b>Education</b>	Smoked Tobacco	Illiterate	123	268	$\chi^2=5.2$ df=3 (p >.05)
		Up to high school	92	261	
		Inter/diploma/graduate	28	64	
		Above graduate	06	06	
	Non Smoked Tobacco	Illiterate	170	221	$\chi^2=18.2$ df=3 (p <.05)
		Up to high school	117	236	
		Inter/diploma/graduate	22	70	
		Above graduate	02	10	
<b>Religion</b>	Smoked Tobacco	Hindu	119	245	$\chi^2=3.4$ df=1 (p >.05)
		Muslim	130	354	
	Non Smoked Tobacco	Hindu	129	235	$\chi^2=.42$ df=1 (p >.05)
		Muslim	182	302	
<b>Parental tobacco use</b>	Smoked Tobacco	Yes	231	383	$\chi^2=73.2$ df=1 (p <.001)
		No	18	216	
	Non Smoked Tobacco	Yes	283	331	$\chi^2=84.9$ df=1 (p <.001)
		No	28	206	
<b>Socioeconomic status</b>	Smoked Tobacco	Upper	21	124	$\chi^2=18.6$ df=1 p<.001
		Lower	228	475	
	Non Smoked Tobacco	Upper	28	117	$\chi^2=23.1$ df=1 p <.001
		Lower	283	420	

Gender	Smoked Tobacco	Male	223	221	$\chi^2=195.5$ df=1 p <.001
		Female	26	378	
	Non Smoked Tobacco	Male	193	251	$\chi^2=18.5$ df=1 p <.001
		Female	118	286	
Rural-urban difference	Smoked Tobacco	Rural	117	307	$\chi^2=1.3$ df=1 p >.05
		Urban	132	292	
	Non Smoked Tobacco	Rural	129	295	$\chi^2=14.3$ df=1 p <.001
		Urban	182	242	
Parental education	Smoked Tobacco	Yes	50	246	$\chi^2=34.1$ df=1 p<.001
		No	199	353	
	Non Smoked Tobacco	Yes	85	211	$\chi^2=12.4$ df=1 p<.001
		No	226	326	
Marital status	Smoked Tobacco	Married	212	410	$\chi^2=40.4$ df=2 p<.001
		Unmarried	18	160	
		Widowed/divorced	19	29	
	Non Smoked Tobacco	Married	249	373	$\chi^2=46.1$ df=2 p<.001
		Unmarried	31	147	
		Widowed/divorced	31	17	

### Discussion:

Prevalence of tobacco use varies in different regions of the country. Data gathered for Uttar Pradesh by Rani & Bonu et al<sup>6</sup>, found that in Uttar Pradesh, prevalence of smoked tobacco use ranges from 28.2 to 35.4% as also seen in present study. They found that in Uttar Pradesh prevalence of non smoked tobacco ranges from 36.3 to 45%. Use of tobacco was found more prevalent in Muslims, though this association was non significant. Nationwide study in 2003<sup>6</sup> also observed that tobacco use was more among Muslims. Social class came out to be a strong predictor of tobacco use. Jindal & Aggarwal et al<sup>7</sup> also concluded with the same findings. Azavedo & Machad et al<sup>8</sup> found out that parental tobacco use was a strong predictor for tobacco use,

like the present study, but on the contrary, study conducted by Kadri & Bhagyalaxmi et al<sup>9</sup> found that 73 % of the users were first reported abuser in the family. Kadri and Bhagyalaxmi et al<sup>9</sup> conducted the study among users for all substances including alcohol, opium, brown sugar etc, coming to de-addiction center in Ahmedabad. The study by them was conducted in a different setting and look correlation for all the substances together. This may explain why the difference in the findings is there. Parental education was a significant predictor for tobacco use in present study. Similar results were seen by Rachiotis & Muula et al<sup>10</sup> also. Studies carried by Chavan & Arun et al<sup>11</sup> concluded gender to be a very strong predictor of tobacco use as depicted in the present study too.



Tobacco use is more prevalent in the individuals who are less educated, as found in the present study. Memon & Moody et al<sup>12</sup>, Naresh R. Makwana et al<sup>13</sup> etc evinced the same finding too. Marital status is significantly associated with tobacco consumption. Other studies in past in Mumbai<sup>14</sup> and Delhi<sup>15</sup> also observed the same pattern of consumption.

### Conclusion:

The grim scenario of rising tobacco-related burdens need not be regarded as fait accompli. There is an alternate vision, one of their effective controls. Establishment of de-addiction centers, strict enforcement of laws, Health education can prove valuable tool for the desired goals. It is essential, therefore, to increase the knowledge, motivation and skills of the people through mass education, and to create strong community-level coalitions to combat tobacco use through government-supported civil society action. The media too, in its varied forms, needs to be effectively enlisted as a partner in this effort. The energy and idealism of the youth also need to be channeled into well-designed anti-tobacco campaigns to make them powerful agents of social change. Children must be sensitized in the schools, enabling them to choose healthy life style and avoiding risk behaviours.

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