A Study On Rural & Urban Differences In Tobacco Use And Its Socio-Demographic Determinants In District Dehradun

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Abstracts: **Background**: Today, tobacco use causes 1 in 10 deaths among adults worldwide – more than five million people a year. By 2030, unless urgent action is taken, tobacco's annual death toll will rise to more than eight million. **Material & method:** A community based cross sectional study was undertaken in district Dehradun. Multistage stratified random sampling was done for selection of study area. A sample of 632 was taken for study purpose. Kish method was used for selection of respondents in selected household. **Statistical analysis:** Chi-square test, Mantel Haenszel Odds Ratio and Multi Variate Logistic Regression Analysis was done to develop results. Significant level was assumed at $p<0.05$. **Results:** The overall prevalence of ever use of tobacco was 24.4%. It was more (32.9%) in rural area as compare to urban area (15.8%). Tobacco use was directly proportional to age, more prevalent in Muslims and was indirectly proportional to education & socioeconomic status. **Conclusion**: Legislation pertaining to tobacco and alcohol sale and use does exist. However its strict enforcement is required in order to reduce the menace.[Shikha D NJIRM 2014; 5(1) : 82-87]

Key Words: Tobacco, Prevalence, Multistage Stratified Random Sampling, Kish Method.

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Introduction: A Although tobacco deaths rarely make headlines, tobacco kills one person every six seconds [1]. Tobacco kills a third to half of all people who use it[2] on average 15 years prematurely[2,3,4]. Today, tobacco use causes 1 in 10 deaths among adults worldwide – more than five million people a year[1]. By 2030, unless urgent action is taken, tobacco's annual death toll will rise to more than eight million[1,5]. Today, of the 1.1 billion people who smoke worldwide, 182 million (16.6%) live in India. Tobacco consumption continues to grow in India at 2– 3% per annum, and by 2020 it is predicted that it will account for 13% of all deaths in India[6,7].

According to estimates made by the WHO, currently about 5 million people die prematurely every year in the world due to the use of tobacco, mostly cigarette smoking and this epidemic of disease and death caused by tobacco is increasing very rapidly. By 2030, it is estimated that the number of premature deaths attributable to tobacco would double to 10 million deaths every year, with about 7 million of the deaths taking place in developing countries[8].

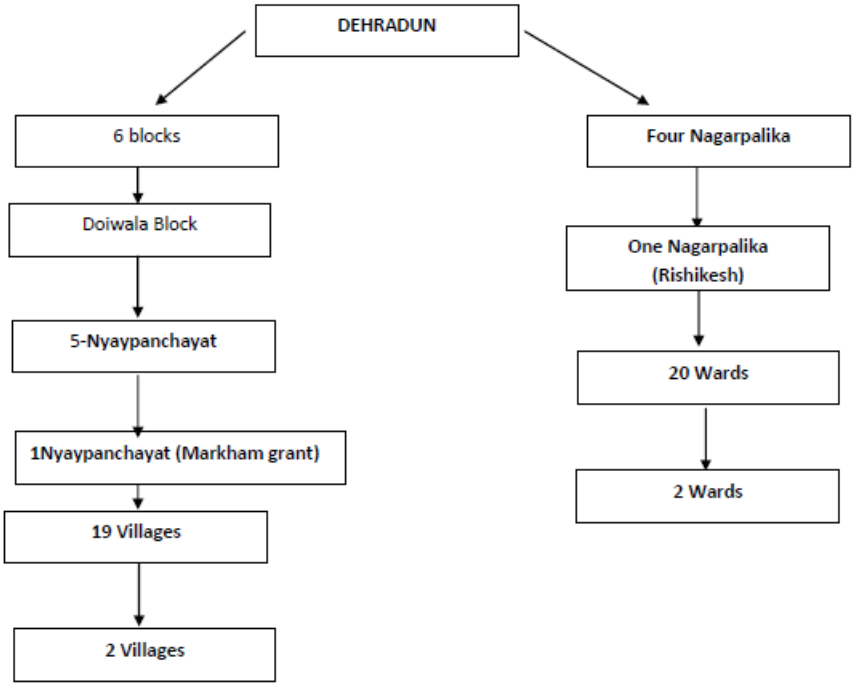
According to WHO report in 2011, SEAR has nearly 250 million smokers and an equal number of smokeless tobacco users. Nearly half of all adult males and two in every five adult females use some form of tobacco. 6.8% of annual deaths in the region are attributed to tobacco use[9].

Material and Methods: A The present study was conducted from the department of Community Medicine, HIHT over a period of one year from May 2012- April 2013. It was a Community based cross sectional study. An adequate sample of 632 was drawn to carry out the present study & Multistage Stratified Random Sampling has been used for the selection of study area (fig 1). Study houses were selected by systematic random sampling & sampling interval. Thus study houses were selected by visiting every "k^{th}" house. Selection of subjects: Keeping in view that prevalence of NCDs & its risk factors are increasing in younger age group individuals aged between 20 to 60 years was selected for the study. In every selected household "Kish" method[10] was applied for the selection of study subjects from the age group of 20-60 years.

The survey was based on WHO STEPS methodology for NCD Risk Factor Surveillance along with desired modification[11].

Data Management & Statistical Analysis : Collected data was compiled, tabulated and analysed by using SPSS 17.0 version, and Microsoft excel 2007. Percentage was calculated for all the variables, Chi square was applied for categorical

Figure 1-Multistage random sampling



variables, Risk (Odds Ratio) was estimated to show strength of association, Mantel Haenszel Odds Ratio and Multi Variate Logistic Regression Analysis was done to develop results. Significant level was assumed at p<0.05.

Result: x While distributing the subjects according to ever use of tobacco, approximately two (2.4) in every ten respondents were using tobacco in any form (**Table-1**).

Table-1: Area wise distribution of ever tobacco use and type of Tobacco use

Variable	Rural respondents			Urban respondents			Total	
	Male n=146	Female n=170	Total no. n=316	Male n=108	Female n=208	Total no. n=316	n=316	%
Tobacco use								
Yes	87(59.6)	17(10.0)	104(32.9)	40(37.0)	10(4.8)	50(15.8)	154	24.4
No	59(40.4)	153(90.0)	212(67.1)	68(63.0)	198(95.2)	266(84.2)	478	75.6
Type of tobacco use								
Smoking only	23(26.4)	4(23.5)	27(26)	13(32.5)	4(40.0)	17(34)	44	28.6
Smokeless only	41(47.2)	11(64.7)	52(50.0)	21(52.5)	4(40.0)	25(50)	77	50.0
Both	23(26.4)	2(11.8)	25(24.0)	6(15.0)	2(20.0)	8(16)	33	21.4

Rural χ^2 87.47 (p<0.0001); Odds Ratio 13.27 (7.28-24.19), Urban χ^2 55.44 (p<0.0001); Odds Ratio 11.65 (5.53-24.55), Mantel Haenszel (MH) common Odds Ratio 12.615

The overall prevalence of ever use of tobacco was 24.4%. It was observed that prevalence of tobacco was more (32.9%) in rural area as compare to urban area (15.8%) and was more common in male respondents than in females (p<0.0001). Rural men are 13.3 times more likely to use tobacco as compared to women, while this difference was 11.7 times in urban area. However rural men were 12.6 times more likely to use tobacco product than urban men (MH-OR 12.62).Out of 632 respondents, prevalence of smokers were 7.0%, 12.2% were using smokeless product only & 5.2% were using both forms of tobacco.

Table2: Depicts that the prevalence of overall ever tobacco use was 24.4%, 32.9% in rural area, while

15.8% in urban area (p<0.0001).With respect to age overall trend shows that tobacco use was directly proportional to age i.e. its use increases with advancing age. It was 20.8% in 20-40 yrs & 28.2% in 41-60 yrs. In rural area also tobacco use was high in 41-60 years of age group as compared to 20-40 years of age group & this difference was found to be statistically significant. Similar trend was observed in urban area.

Table -2: Association of Socio-Demographic factors with ever tobacco use

Variable	Rural respondents			Urban respondents			Total respondents		
	Total subjects	No. of ever tobacco users		Total subjects	No. of ever tobacco users		Total subjects	No. of ever tobacco users	
Age	N1 (316)	n1 (104)	% {32.9}	N2 (316)	n2 (50)	% {15.8}	N1+N2 (632)	n1+n2 (154)	% {24.4}
20-30	108	28	25.9	76	7	9.2	184	35	19.0
31-40	69	21	30.4	78	13	16.7	147	34	23.1
41-50	47	23	48.9	68	9	13.2	115	32	27.8
51-60	92	32	34.8	94	21	22.3	186	53	28.5
χ^2 ; p-value	8.19 (p <0.05)			5.87 (p > 0.05)			5.44;(p > 0.05)		
Religion									
Hindu	207	73	35.3	282	47	16.7	489	120	24.5
Muslim	61	26	42.6	-	-	-	61	26	42.6
Sikh	48	5	10.4	9	1	11.1	57	6	10.5
Others	-	-	-	25	2	8.0	25	2	8.0
χ^2 ; p-value	14.13(p < 0.001)			1.45 (p >0.05)			20.59 (p < 0.0001)		
Education									
Illiterate	94	30	31.9	44	7	15.9	138	37	26.8
Upto Jr.H school	116	49	42.2	41	7	17.1	157	56	35.7
High school-Inter.	78	22	28.2	91	20	22.0	169	42	24.9
Graduate & above	28	3	10.7	140	16	11.4	168	19	11.3
χ^2 ; p-value	11.82 (p < 0.01)			4.66 (p> 0.05)			26.77 (p < 0.0001)		
Socio Economic Class									
Upper Middle*	25	5	20.0	25	2	8.0	50	7	14.0
Lower Middle	29	6	20.7	156	18	11.5	185	24	13.0
Upper Lower	122	39	32.0	112	23	20.5	234	62	26.5
Lower	140	54	38.6	23	7	30.4	163	61	37.4
χ^2 ; p-value	5.93 (p > 0.05)			8.85 (p < 0.05)			31.60 (p < 0.0001)		

*No of subjects in upper class were very low therefore they were included in upper middle class.

It has been observed that tobacco use was more prevalent in Muslim community (42.6%) followed by Hindu (24.5%), Sikh & others (10.5% & 8.0% respectively). As far as education is concerned tobacco use was inversely proportional to increasing level of education. It was 31.5% in subjects educated up to junior high school as compared to 18.1% in subjects educated more than high school. It was least (11.3%) among graduates & above while highest (26.1%) among illiterates. Similar pattern was observed in rural area. In urban area a slight different pattern was observed where tobacco use increased in subjects educated up to intermediate there after decreasing among subjects with higher education (p<0.001).

Tobacco use was inversely proportional to socio-economic class. Majority of users belonged to lower class i.e.37.4%. The same was observed in both rural & urban areas where maximum i e 38.6% in rural & 30.4% in urban respondents were from lower class. Least tobacco users (8%) were found in upper middle class and this was statistically significant.

Discussion: In the present study, the prevalence of ever tobacco use was 24.4%, which was almost double in rural area as compared to urban. The

Table-3 Multivariate analysis of ever tobacco use

	Beta coefficient	S.E.	OR	95.0% C.I. for OR		p-value
Area						
Rural	.224	.362	1.251	.615	2.544	0.537
Urban	Ref.		1.00			
Sex						
Male	2.980	.302	19.684	10.881	35.610	***0.000
Female						
Marital status						
Unmarried	Ref.		1.00			
Married	.743	.371	2.102	1.016	4.347	0.045
Widow	2.335	.579	10.334	3.322	32.148	***0.000
Age in years						
20-40	-.545	.274	.580	.339	.991	0.046
41-60	Ref.		1.00			
Education						
Illiterate	-.520	.487	.594	.229	1.542	0.285
Literate	Ref.		1.00			
Religion						***0.000
Hindu	Ref.		1.00			
Muslim	1.021	.466	2.775	1.114	6.910	*0.028
Others	-1.314	.483	.269	.104	.692	**0.007
SES						
Middle	-.837	.306	.433	.238	.788	**.006
Low						

overall prevalence of ever use of tobacco product was found to be 29.6% in Karnataka & 34.6% in U.P as per ICMR survey done in 2001[12]. Mehan et al in 2006 in urban population reported slightly higher (22.3%,) prevalence of tobacco use than our study[13]. A comparable report by NFHS-3 in India also reported higher use of tobacco in rural area as compared to urban area[14]. According to IIPS survey in six Indian states, overall, in India, 30 % of respondents use tobacco either smoking or chewing, similar to our findings. The proportion of respondent using tobacco (daily consumption) varies from 23 to 36% across six states with highest (36%) in Assam followed by 34% in both West Bengal and Uttar Pradesh and the lowest of 23 % in Karnataka and these figures were comparable to our study [15].

The prevalence of tobacco use in rural and urban area in present study was seen to be increasing with advancing age i.e. it was reported least (19.0%) among 20-30 years age group and maximum (28.5%) among 51-60 years age group. Similar observation was seen in IDSP survey Uttrakhand where the prevalence of smoking among urban and rural male respondents has increased with age from 11% and 9% among 15-24 years to 46% & 68% in 45-54years respectively[16]. NFHS-3 India & IIPS survey 2003 also reported same pattern[14, 15]. Similarly various other studies like ICMR study from UP and Karnataka in 2001[12], Gupta V from Ballabhgarh in 2010[17], Bala DV from Gujarat in year 2006[18], and Krishnan et al from rural Faridabad in 2008[19] reported the same.

In present study tobacco use was found to be in higher proportion (42.6%) among Muslims. ICMR study from UP and Karnataka in 2001 also revealed more tobacco use among Muslims from UP but not in Karnataka[12]. High prevalence among Muslims was also reported in NFHS 3 (60.5%) national report [14] and Sugathan et al (42.2%)[20].

Present study reveals high prevalence of tobacco use among illiterates. The prevalence of tobacco use was also high (25.7%) among subjects studied

up to Junior high school with 42.2% in rural and 15.9% in urban subjects. In present study the tobacco use was observed to decrease significantly with increasing education status up to Graduation. Similarly IDSP survey in Uttarakhand also revealed that tobacco use among urban male has shown declining trend with increasing level of education. It was reported to be 26% among subjects educated up to primary while 10% among those studied up to college and above. They have reported similar trend for rural area[16]. Chaudhary KC, 2001 in his report from UP & Karnataka also mentioned that education beyond middle school level was associated with lower prevalence of tobacco use in both sexes[12]. Bala D also reported higher proportion (53.5%) of tobacco use among subjects studied up to primary while 24.8% among those studied up to graduates and above[18].Sorensen G in a study from Mumbai in the year 2005 also reported high prevalence among subjects studied up to primary while least among those with college education[22]. Gupta R et al in 2006, reported that tobacco use was highest (60.0%) among illiterate men[25] and Subramanian SV also reported tobacco use three times higher in educationally worst off group than educationally best off group[21].

In present study prevalence of tobacco use was high among lower SES subjects. IIPS survey India also reported that tobacco use was in 42.0% of subjects from lower income quintile as compared to 16.0% among subjects from higher income quintile. Chaudhary K C[12], NFHS 3 data[14], Sugathan et al.[20], Rooban T et al[24] and Subramanian SV (odds ratio of 2.5)[21] also reported higher prevalence of tobacco use among subjects from low SES.

Our study showed that ever married men were two times more likely to use tobacco than unmarried men while widowed/separated/divorced show higher odds i.e.10.33 which is comparable with Rooban T [24], Subramanian SV[21] and Medhi GK[26].

Conclusion: Present study shows that tobacco use was more prevalent in the form of smokeless product, followed by smoke & combination of both in both rural and urban area with comparatively higher prevalence in rural area. Legislation pertaining to tobacco and alcohol sale and use does exist. However its strict enforcement is required in order to reduce the menace. Raising taxes on tobacco, banning tobacco advertisement and sale of smokeless tobacco and legislating to curb smoking in public places are few steps to reduce tobacco use among masses.

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