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A cross-sectional study on tobacco consumption and its association with age, education, socioeconomic and marital status in a rural area of Kashmir Valley

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Abstract
Background: Tobacco use is the leading cause of preventable death and is estimated to kill more than 5 million people each year worldwide. Tobacco use is higher in middle-income countries than in low- or high-income countries, and in all income groups is higher among men than women. Men in lower middle-income countries have the highest smoking prevalence at 39%, followed by men in upper-middle-income countries (35%). Among women, there are relatively higher rates (around 15%) in upper-middle and high-income countries, and considerably lower rates (between 2-4%) in low- and lower-middle income countries.
Material and Methods: The study was a population based cross sectional survey conducted among residents of 25-64 years old in rural area of Kashmir Valley. WHO STEP wise approach was utilized for conducting the study. A multistage cluster sampling design was used.
Results: The overall prevalence of tobacco abuse was 28.85% in the respondents. The prevalence of ex-smokers was 6.98%. Among males 56.79% participants were reported as current smokers and 8.33% as ex-smokers. However among females only 14.62% were reported as current smokers and 6.29% as ex-smokers. The percentage of tobacco abuse was highest (53.20%) in 55-64 years age group. It was seen that out of the total tobacco abusers maximum (36.21% and 31.30%) were having just primary level of education or were illiterates respectively. Whereas in contrary to this tobacco abuse was found lower in study participants who had good educational level. Only 19.21%of graduates were consuming tobacco and there was not a single person of post graduate level who was consuming tobacco. It can be seen that with increasing level of educational status there was decrease in tobacco abuse and the association between tobacco abuse and level of education was found to be statistically significant.
Conclusion: A sample size of 960 was derived in that 324 respondents were males and 636 females; majority of the participants were married, illiterate, in the age group of 35 - 44 years, females engaged in household work, males as skilled workers. This study found a high burden of major risk factor of non-communicable diseases with 14.62% smokers.

Keywords: tobacco, smoking and non-communicable disease

1. Introduction
Tobacco use is the leading cause of preventable death, and is estimated to kill more than 5 million people each year worldwide. Most of these deaths are in low- and middle income countries [1].Tobacco use is higher in middle-income countries than in low- or high-income countries, and in all income groups is higher among men than women. Men in lower middle-income countries have the highest smoking prevalence at 39%, followed by men in upper-middle-income countries (35%). Among women, there are relatively higher rates (around 15%) in upper-middle and high-income countries, and considerably lower rates (between 2-4%) in low- and lower-middle income countries [2]. Use of smokeless tobacco is widely prevalent in India; the different methods of consumption include chewing, applying tobacco preparations to the teeth and gums (mishri) and sucking tobacco with lime (quid) etc. They cause a broad spectrum of ill effects and diseases. It has been recognized internationally that smokeless tobacco use is associated with oral cancer and adverse reproductive outcomes and premature death [3]. India is the second largest consumer of tobacco in the world with an estimated 274.9 million tobacco users. Approximately 8-9 lakh people die due to tobacco related diseases every year [4, 5]. The rising trend of tobacco consumption especially in developing countries is a cause of concern. According to an estimate, prevalence of smoking among women worldwide will be 20% by 2025, a sharp contrast to the 12% of the world's women who smoke at present [6].

2. Methods
The study was a population based cross sectional survey conducted among residents of 25-64 years old in rural area of Kashmir Valley. WHO STEP wise approach was utilized for conducting the study. A multistage cluster sampling design was used. All the villages along with their population were enlisted. Then the cumulative population of each village was calculated and was divided by 30 to get cluster interval. First cluster was chosen randomly and subsequent clusters based on cluster interval. In each cluster 32 individuals were selected by Kish method. In this method eeach household in the cluster received a number. The Kish Household List determined Kish table which was used for each household based on the number of the households. The household information was filled on the coversheet and a participant was selected based on the Kish table. All participants were studied in a face-to-face interview for obtaining demographic particulars which included questions on smoking on a pre-structured questionnaire.

3. Statistical analysis

The standard statistical test like chi square (x2) was applied where ever required. All the results obtained have been discussed on 5% level of significance i.e. a p value of < 0.05 has been considered significant. The analysis of the data was done using SPSS version 20.00, Chicago, USA for windows.

4. Results

Table 1 shows the tobacco use among study participants. The overall prevalence of tobacco abuse was 28.85% in the respondents. The prevalence of ex-smokers was 6.98%. Among males 56.79% participants were reported as current smokers and 8.33% as ex-smokers. However among females only 14.62% were reported as current smokers and 6.29% as ex-smokers. Table 2 shows the tobacco abuse among study participants as per their age groups. The percentage of tobacco abuse was highest (53.20%) in 55-64 years age group followed by 36.50%% in 45-54years and then by 21.02%% in 35-44years. The percentage of tobacco abuse was lowest (19.30%) in 25-34 years age group. The table clearly shows that with increase in age the percentage of tobacco abuse also increases and the association between tobacco abuse and age was found to be statistically highly significant. Table 3 shows the tobacco abuse among study participants in accordance with their educational status. It was seen that out of the total tobacco abusers maximum (36.21% and 31.30%) were having just primary level of education or were illiterates respectively. Whereas in contrary to this tobacco abuse was found lower in study participants who had good educational level. Only 19.21%of graduates were consuming tobacco and there was not a single person of post graduate level who was consuming tobacco. It can be seen that with increasing level of educational status there was decrease in tobacco abuse and the association between tobacco abuse and level of education was found to be statistically significant. Table 4 shows the tobacco use among study participants as per their socioeconomic status. Percentage of the participants who reported tobacco abuse was highest in class -V (50%) followed by class- II (34.72%) class- IV (29.11%), class -III (26..02%).It was least in Class -I (22.61%). Thus the percentage of tobacco abuse was lowest in higher socioeconomic classes and vice versa. However the difference was found to be statistically non-significant. Table 5 shows consumption of tobacco among the study participants with respect to their marital status. It was seen that out of the total study participants, maximum (38.59%) were smokers and belonged to ever married group followed by 32.06% and 20.46% who were currently married/ unmarried respectively. However the association between the tobacco abuse and marital status was found to be highly statistically significant (p<0.001).

Table 1: Tobacco abuse in the Study population.

Tobacco Use	Males		Females		Total	
	n	(%)	n	(%)	n	(%)
Current Smoker*	184	56.79	93	14.62	277	28.85
Ex-Smoker**	27	8.33	40	6.29	67	6.98
Non-Smoker	113	34.88	503	79.09	616	64.17
Total	324	100	636	100	960	100

* Current smoker was a person who currently smoked every-day or some days.
** Ex-smoker defined by a person who has quit smoking at least one year back

Table 2: Tobacco abuse across different age groups

Age in years	Present		Absent			
	n	(%)	n	(%)	Total	(%)
25-34	56	19.30	234	80.68	290	100
35-44	62	21.02	231	78.83	293	100
45-54	92	36.50	160	63.49	252	100
55-64	67	53.20	58	46.40	125	100
Total	277	28.85	683	71.14	960	100

X^2=65.79, df = 3, p<0.001

Table 3: Tobacco abuse in different levels of Education

Education Status	Tobacco abuse present		Tobacco abuse absent		Total	
	n	(%)	N	(%)	n	(%)
Illiterate	155	31.30	340	68.70	495	100
Primary	34	36.21	59	63.79	93	100
Middle	17	24.52	51	75.48	68	100
Secondary	33	27.21	89	72.95	122	100
Higher secondary	29	29.63	69	70.40	98	100
Graduate	9	19.21	37	80.43	46	100
Post-Graduate & above	0	0	38	100	38	100
Total	277	28.85	683	71.14	960	100

X^2=19.47, df = 6, p=0.003

Table 4: Tobacco abuse and socioeconomic status

Socioeconomic status	Tobacco abuse present		Tobacco abuse absent		Total	
	n	(%)	n	(%)	n	(%)
Class-I	35	22.61	118	77.12	153	100
Class-II	86	34.72	162	65.32	248	100
Class-III	75	26.02	213	73.95	288	100
Class-IV	76	29.11	185	70.88	261	100
Class-V	5	50.00	5	50.00	10	100
Total	277	28.85	683	71.14	960	100

X^2=10.06, df = 4, p=0.039

Table 5: Tobacco abuse and Marital Status

Marital status	Present		Absent			
	n	(%)	n	(%)	Total	(%)
Un-married	61	20.46	237	79.53	298	100
Married	194	32.06	411	67.93	605	100
Ever Married	22	38.59	35	61.40	57	100
Total	277	28.85	683	71.14	960	100

X^2=65.52, df = 2, p<0.001

5. Discussion

Our study revealed tobacco use was most prevalent (53.2%) in the older age group (55-64yrs) and 14.62% of females were reported as smokers. This was in accordance with the study conducted by Sinalkar DR *et al*. in Pune (2012) [7]. These findings were comparable with the findings of National Family Health Survey 3 which showed that 11 percent of women used some form of tobacco [8]. As per GATS India report 2010 the prevalence of tobacco use among females was 20.3% which was higher than that found in our study [9]. The overall prevalence of smoking in our study was 28.85%. It was comparable to a STEPS study conducted by Sophal *et al*. (2010) in Cambodia in which it was 29.4% [10]. Our study revealed that out of the total tobacco abusers maximum (36.21% and 31.30%) were having just primary level of education or were illiterates respectively. This was in accordance with the studies conducted by Reddy KS and Gupta PC and Jindal *et al*. which showed that the lower level of educational attainment was more likely to be associated with tobacco consumption [11, 12]. Our study reveals that the percentage of the participants who reported tobacco abuse was highest in class -V (50%) followed by class- II (34.72%) class- IV (29.11%), class -III (26..02%). It was least in Class -I (22.61%). Thus the percentage of tobacco abuse was lowest in higher socioeconomic classes and vice versa. This was in accordance with the of Campaign for Tobacco-CDC, 2015 conducted in Washington, D.C which showed Cigarette smoking disproportionately affects the health of people with low SES. Lower income cigarette smokers suffer more from diseases caused by smoking than do smokers with higher incomes [13]. It was seen that out of the total study participants, maximum (38.59%) were smokers and belonged to ever married group followed by 32.06% and 20.46% who were currently married/ unmarried respectively. However the association between the tobacco abuse and marital status was found to be highly statistically significant (p<0.001). This was in contradiction with Cuadernos de investigation (2013) were bachelors smoke more than married.

6. Conclusion and recommendation

- This study found a high burden of major risk factor of non-communicable diseases with 14.62% smokers. Since risk factors for major NCDs tend to appear in early life and track down into adulthood, it is thus, needed to identify those adults or groups with unfavourable risk profiles.
- To lower the burden of risk factors of this global pandemic the need of the hour is that all the stakeholders, be it the public, health care service providers, government, food industry, agriculture, media have to join hands to create sustainable actions in the form of health education programs, health policies, early diagnosis and prompt treatment, laws and regulations and their implementation.

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