AN EPIDEMIOLOGICAL STUDY OF TOBACCO USE AMONG MALES ABOVE 15 YEARS OF AGE IN AN URBAN AREA OF MEERUT DISTRICT

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ABSTRACT

BACKGROUND

In India, approximately 5500 children and adolescents start using tobacco products daily, some as young as 10 years old. The majority of users have first use tobacco prior to the age of 18 years. Uttar Pradesh shows a high tobacco use, smoking being more popular than chewing.

OBJECTIVES

1. To find out the prevalence of tobacco use among males above 15 years of age.
2. To assess the sociodemographic and other correlates on tobacco use.

MATERIALS AND METHODS

Out of 10,000 population residing in urban field practice area, number of males above 15 years of age was 3800. A sampling of eligible subjects was done by systematic random sampling technique, including every 4th male in study.

RESULTS

The prevalence of tobacco use is 54.68%, among which 28.12% are smoking and 26.56% are using smokeless form of tobacco. The prevalence is more in upper socioeconomic status (38.70%) than lower socioeconomic status (25%), more in nuclear families as comparison to joint family and in non-vegetarian as comparison to vegetarians. There is also an association between literacy and tobacco use; more in illiterate persons as comparison to those who are educated for more than high school.

CONCLUSIONS

This study shows that the prevalence of tobacco use is high among nuclear families, high socioeconomic status, unmarried people, non-vegetarians and illiterate persons.

KEYWORDS

Smoking/Smokeless Tobacco/Socioeconomic Status.

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BACKGROUND

Tobacco use kills nearly six million people worldwide each year. According to the World Health Organization (WHO) estimates, globally, there were 100 million premature deaths due to tobacco in the 20th century, and if the current trends of tobacco use continue, this number is expected to rise to 1 billion in the 21st century¹. Tobacco smoking is among the largest preventable causes of premature deaths globally.¹ In 2010, an estimated 120 million Indian adults smoked, making India second only to China in number of smokers.² The consumption pattern of tobacco has likely changed over the last decade in response to substantially higher income in India paired with population growth and perhaps in response to modest tobacco control efforts.³ According to the National Family Health Survey (NFHS)-3 survey, conducted in

2005-06, tobacco use is more prevalent among men, rural population, illiterates, poor and vulnerable section of the society.⁴ The estimates of the Global Adult Tobacco Survey (GATS) conducted among persons 15 years of age or older during 2009-10 indicate that 34.6% of the adults (47.9% males and 20.3% females) are current tobacco users. Fourteen percent of the adults smoke (24.3% males and 2.9% females) and 25.9% use smokeless tobacco (32.9% males and 18.4% females).²

Tobacco is deadly in any form or disguise. Scientific evidence has unequivocally established that exposure to tobacco smoke causes death, disease and disability.⁵ Forty percent of the tuberculosis burden in India may be attributed to smoking.

Significant association is seen between passive or active exposure to tobacco smoke and tuberculosis infection, disease and tuberculosis mortality.⁶ Pednekar et al in their Mumbai cohort found that the incidence of oral cancers was 42% higher among bidi smokers as compared with cigarette smokers.⁷ Smokeless tobacco use was associated with cancers of the lip, oral cavity, pharynx, digestive, respiratory and intrathoracic organs.⁸ There is need to improve knowledge and awareness about bad effects of tobacco use in Rural as well as Urban areas through various IEC activities. The objectives of the present study were: (1) To find out the prevalence of tobacco use among males above 15 years of

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age. (2) To assess the sociodemographic and other correlates on tobacco use.

METHODOLOGY

The present study was conducted at the Urban Health Training Centre, Surajkund, Meerut, which is the Urban Health Training Centre of the Department of Community Medicine, LLRM Medical College, Meerut.

The Urban Health Training Center, Surajkund caters a total population of 9971 residing in approximately 1781 families.

Appropriate simple random sample of size (n) within 95% confidence limit may be obtained by using the following formula:

$$n = \frac{Z^2 \times P \times Q \times DEFF}{d^2}$$

Where Z = (Value of Z at 95 % =1.96)

P = Prevalence.

q = (100-P).

d = Probable error (absolute or relative precision).

DEFF= Design Effect (1 for SRS).

By using 30% anticipated prevalence use among males of 15 years and above with 10% relative precision, following sample size was obtained for the study:

$$n = \frac{(1.96)^2 \times 30 \times (100 - 30)}{10\% \text{ of } 30 \times 10\% \text{ of } 30}$$

$$= \frac{3.84 \times 30 \times 70}{3 \times 3}$$

Out of 10,000 population residing in urban field practice area, number of males above 15 years of age was 3800. Since population is large, scattered and complete list of population was available, a sampling of eligible subjects was done by systematic random sampling technique including every 4th male in study. If sampled individual was not available for study due to any reason, e.g. absent, not willing to participate, etc., then the next individual was included for study.

The desired information viz. tobacco use, disability due to tobacco use, other factors pertaining to tobacco use was collected on a predesigned interview schedules. Voluntary, written consent was obtained from all subjects.

The desired information viz. tobacco use, disability due to tobacco use, other factors pertaining to tobacco use was collected on a predesigned interview schedules. Data was analysed using statistical package for the social sciences (SPSS) software 22.0.0 (License Code-9DNCAF203QVDV7FBI0696006GWLNXZPPRYTPWF2PPX7C8T6Y24LMVV2ET7DOLX5CXAL5YDLL79UPGEFCPDXP5Q805 E). As this study did not involve any patients or patient's records, the institutional ethical committee intimated that ethical clearance was not required.

OBSERVATION AND RESULTS

In the present study, the total sample size was 896 and out of these 490 persons (54.68 %) are found to be using one or more form of tobacco.

Form of Tobacco Use	No.	Percentage (%)
Tobacco Smoking	252	28.12
Smokeless tobacco	238	26.56
Total	896	54.68

Table 1: Prevalence of Tobacco Use

Out of 490 subjects, 252 (28.12%) were smoking tobacco while (238) 26.56% are using smokeless form of tobacco.

Sl. No.	Age	No.	Smoking		Smokeless	
			No.	%	No.	%
1.	15-19	180	22	12.15	18	9.94
2.	20-24	176	27	15.34	39	22.15
3.	25-29	141	39	27.65	42	29.78
4.	30-39	125	46	36.8	42	33.6
5.	40-49	113	50	44.24	40	35.39
6.	50-59	94	43	45.74	33	35.1
7.	60+	66	25	37.87	24	36.36
8.	Total	896	252	28.12	238	26.56
χ^2			$\chi^2 = 73.81$		$\chi^2 = 42.59$	
			df = 6		df = 6	
			p < .001		p < .001	

Table 2: Distribution of Study Subjects according to Age

The prevalence of tobacco use was minimum in age group of 15-19 years with the prevalence of smoking and smokeless tobacco use of 12.15% and 9.94% respectively and the prevalence of tobacco use gradually increases with increasing age with minor variations being maximum in age group of 50-59 years with the prevalence of smoking and smokeless tobacco use of 45.74% and 35.10% respectively and significant fall in overall prevalence of tobacco use after attaining the age of 60 years. The prevalence of tobacco use in relation to age was found to be statistically significant (p<.001).

Sl. No.	Socio-Economic Status	No.	Smoking		Smokeless	
			No.	%	No.	%
1	Upper	31	12	38.7	11	35.48
2	Upper Middle	503	147	29.22	138	27.43
3	Lower Middle	179	51	28.49	52	29.05
4	Upper Lower	163	37	22.69	34	20.85
5	Lower	20	5	25	3	15
		896	252	28.12	238	26.56
χ^2			$\chi^2 = 75.53$		$\chi^2 = 6.12$	
			df = 4		df = 4	
			p < .001		p > .05	

Table 3: Distribution of Male according to Socio-economic Status

The prevalence of tobacco use, gradually increasing with the socio economic status, being minimum in lower socio economic status (25.00% and 15.00% respectively) and maximum in upper socio economic status (38.70% and 35.48% respectively) with a little minor variation. The association was found statistically significant in case of smoking (p<.001), while this is insignificant in case of smokeless form of tobacco abuse (p>0.05).

Sl. No.	Education	No.	Smoking		Smokeless	
			No.	%	No.	%
1	Illiterate	391	102	26.08	98	25.06
2	Junior High School	271	98	36.16	90	33.21
3	High School	191	43	22.51	46	24.08
4	>High School	43	9	20.93	4	9.3
5	Total	896	252	18.12	238	26.56
χ^2			$\chi^2 = 13.54$		$\chi^2 = 13.76$	
			df = 3		df = 3	
			p < .05		p < .05	
Table 4: Distribution of Study Subjects according to Education						

The prevalence of smoking and smokeless tobacco use is maximum among illiterate persons (26.08% and 25.06% respectively) and minimum in persons educated for more than high school (20.93% and 9.30% respect.) with a minor variation. The association was found statistically significant ($p < 0.05$).

Sl. No.	Occupation	No.	Smoking		Smokeless	
			No.	%	No.	%
1	Unemployed	167	62	37.12	64	38.32
2	Student	88	9	10.22	7	7.95
3	Labourer	403	73	18.11	84	20.84
4	Govt./Pvt. Service	89	41	46.06	33	37.07
5	Own Business	149	67	44.96	50	33.55
6		896	252	28.12	238	26.56
χ^2			$\chi^2 = 75.70$		$\chi^2 = 43.00$	
			df = 4		df = 4	
			p < .001		p < .001	
Table 5: Distribution of Study Subjects according to Occupation and Tobacco Use						

It is evident from table 15 that both forms of tobacco use was maximum in persons in Govt./Pvt. service, followed by those who were running their own business, then unemployed persons with minor variation. The prevalence was lowest among students. The difference in relation to occupation was statistically significant ($p < 0.001$).

Sl. No.	Marital Status	No.	Smoking		Smokeless	
			No.	%	No.	%
1	Unmarried	349	169	31.23	99	28.36
2	Ever Married	547	143	26.14	139	25.41
3		896	252	28.12	238	26.56
χ^2			$\chi^2 = 46.61$		$\chi^2 = 0.95$	
			df = 1		df = 1	
			p < .001		p > .05	
Table 6: Distribution of Study Subjects according to Marital Status						

Use of smoke and smokeless tobacco was comparatively more in unmarried (31.23% and 26.14% respectively) than ever married (26.14% and 25.41% respectively). The difference in prevalence of smoking in relation to occupation was statistically significant ($p < 0.001$), but this is insignificant in use of smokeless tobacco ($p > 0.05$).

Sl. No.	Type of Families	No.	Smoking		Smokeless	
			No.	%	No.	%
1	Nuclear	491	146	29.73	148	30.14
2	Joint	405	106	26.17	90	22.22
3		896	252	28.12	238	26.56
χ^2			$\chi^2 = 1.39$		$\chi^2 = 7.14$	
			df = 1		df = 1	
			p > 0.05		p < 0.05	
Table 7: Distribution of Study Subjects according to type of Families						

The prevalence of smoking and smokeless tobacco use was more in persons belonging to nuclear family (29.73% and 30.14% respectively) as compared to those in joint family (26.17% and 22.22% respectively). The prevalence of substance abuse in relation type of family was found to be statistically insignificant in case of smoking ($p > 0.05$); however, the prevalence of smokeless tobacco abuse was found to be statistically significant ($p < 0.05$).

DISCUSSION

In this study, the prevalence of tobacco use is 54.68%. A large survey in 2001 showed that the prevalence of current tobacco use above 10 years of age in Uttar Pradesh was 50.0% among men & 9.1% among women.⁸

A high prevalence (67.70%) was also reported in study of substance use in intercollege students in district Dehradun.⁹ A large cross-sectional study of adults in Mumbai found that 69% of males were tobacco users, with 24% using cigarettes or bidi.⁵ and it is estimated that 52–70% of males and 3–38% of females currently use tobacco in some form in different areas of India.^{10,11}

The age wise analysis shows that as the age increases from 15 to 49 years the use of smokeless tobacco also increases from 9.94% to 35.39%, followed by a little fall in the 50-59 years (35.10%) and 60+ age group (36.36%). The prevalence increased with increasing age which was also found in WHO-SEARO report.⁹ and NFHS-3 report.⁴

In this study, the prevalence of tobacco use, gradually increasing with the socioeconomic status contrary to WHO-SEARO report.¹² which says that higher family income levels were associated with a lesser prevalence of current tobacco use. Rani et al. (2003)¹³ and Subramanian et al (2004).¹⁴ have analysed the pattern and distribution of tobacco consumption and health behaviour of households in India with the NFHS-3 data.⁴ Socio-economic deference is more marked for smoking than for chewing tobacco.

In the present study, tobacco use was more prevalent among illiterate (25.06% smokeless form, 26.08% smoking) as compared to literate one for more than high school (9.30%, 20.93% respectively). The negative association with educational status in this study is supported by WHO-SEARO report.⁹ for tobacco use in Uttar Pradesh & Karnataka.

Influences of occupation on tobacco use was also enquired and observed in this study. Most of the tobacco users were doing service (37.07% smokeless tobacco, 46.06% smoking) than those having own business (33.35% and 4.96% respectively) followed by unemployed (38.82% and 37.12% respectively), labourers (20.84% and 18.11 % respectively) and least common amongst the students (7.95% and 10.22% respectively). This finding is supported by Sinha, et al (2001).¹⁵ in rural area of Bihar and Bala et al (2006)¹⁶ in

Gujarat and NE region- annual report 1999-2000 reporting high prevalence of tobacco use among self-employed (53.7% smokeless, 42.7% smoking) followed by employed (41.3%, 52.4% respectively). Prevalence was low among students and unemployed.

In the present study, a small difference was observed when analysis about the influences of marital status on tobacco use was undertaken. Overall a little more of unmarried people (28.36% smokeless tobacco, 31.23% smoking) are using either form of substances in this study population as compared to ever married people (25.41% smokeless tobacco, 26.14% smoking). This finding is supported by Bhonsle et al (1996).¹⁰ reporting tobacco use more common in those of unmarried people as compared to those of the married one, but not supported by Sinha et al (2001)¹⁵, Bala et al (2006).¹⁶

All type of substance use were found to be statistically more common in nuclear family in comparison to joint family (30.14% for smokeless tobacco, 29.73% for smoked form in nuclear family and 22.22%, 26.17% respectively in joint family which was almost similar to findings of WHO-SEARO report (2001)⁹ and NFHS-3 report.⁴ - "pattern of substance use is more common in small family".

CONCLUSION

This study shows that the prevalence of tobacco use gradually increases with increasing age and upper socioeconomic status. Literacy has positive impact on tobacco use. Findings suggest that prevalence is more among persons in Jobs; work pressure may be an important reason for tobacco use. Family size and marital status also impact on tobacco use indicating poor emotional support in a nuclear family and/or by spouse.

STRENGTH

The strength of the study was that the sampling of eligible subjects was done by systematic random sampling technique. The sample size is large enough to avoid biases. Based on observations an attempt was made in community for behavioural change regarding tobacco use.

LIMITATIONS

In spite of the best efforts to convince all the study subjects to participate in the study, some of them did not cooperate. Females were not included in this study which is another limitation, hence this study cannot be generalised to the entire reference population.

RECOMMENDATIONS

It was also felt during the study that there is a need to increase awareness regarding factors influencing tobacco use and its health hazards in the general population.

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