International Journal of Research in Medical Sciences
Mishra A et al. Int J Res Med Sci. 2015 Sep;3(9):2169-2173
www.msjonline.org
pISSN 2320-6071 | eISSN 2320-6012

DOI: http://dx.doi.org/10.18203/2320-6012.ijrms20150595

Research Article

Pattern and prevalence of tobacco use and associated oral mucosal lesions: a hospital based cross sectional study at a tertiary care hospital in central India

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Received: 11 August 2015
Accepted: 21 August 2015

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ABSTRACT

Background: Tobacco is known to mankind since ages. Despite the widespread awareness about tobacco related health hazard and vigorous efforts to regulate its use in various form of strict tobacco control legislation; its use is increasing at an alarming rate. Tobacco use carries a high risk of major health-related illness and several forms of cancers. The epidemic of tobacco use in India is inflicting a huge damage on the human health and the associated health care costs are creating a huge financial burden on the government. The objective of the study was to assess the prevalence of tobacco consumption and related oral mucosal lesions among patients reporting to dental outpatient department of a tertiary care centre in Rewa (M.P.).
Methods: Out of the total patients reporting to the outpatient department of dentistry during the study period, 5185 patients were considered for this study, 1285 were found consuming tobacco in one or other form. The consent for participation in the study was given by 1178 tobacco users. They were interviewed through prepared questionnaires and clinically examined for tobacco associated oral lesions. The data were collected, cleaned and compiled.
Results: The overall prevalence of tobacco use was 24.78%. Out of the 1178 tobacco users studied, 893 (75.80%) were males and 285 (24.19%) females. Smoked form was the most commonly used tobacco for males (44.56%) while smokeless tobacco was preferred by majority of females (69.12%). 23.94% of the tobacco users were in the age group of 21-30 years. Oral mucosal lesions were seen in 32.51% subjects.
Conclusions: The number of tobacco users visiting the dental hospital is reasonably high; Tobacco consumption is a common cause of addiction, preventable illness, disability and death. The public health system should be strengthened for effectively designing, implementing and evaluating tobacco control and prevention programs. All health care professionals should be sensitized and educated for implementing measures for tobacco control and cessation.

Keywords: Tobacco, Smoked, Smokeless, Prevalence, Oral lesions

INTRODUCTION

Tobacco use in any form is one of the leading preventable causes of morbidity and mortality in the world.[1] According to the World Health Organization (WHO) estimates, globally, there were 100 million premature deaths due to tobacco in the 20thcentury, and if the current trends of tobacco use continue, this number is expected to rise to 1 billion in the 21st century.[2] Tobacco in India was introduced some 400 years ago by Portuguese by establishing tobacco trade based in Goa.[3]

India is world's third largest tobacco growing country and Bidi manufacturing is the largest tobacco industry in India. As per the latest nationally representative Global Adult Tobacco Survey (GATS), India had 275 million current tobacco users in the year 2009-2010 (over 35

percent of adults): majority of them used smokeless tobacco (164 million) and 42 million used both forms of tobacco.[5] Tobacco use is a serious public health challenge in terms of magnitude and the different forms it is used in India. Smoking tobacco products include bidis, manufactured and hand-rolled cigarettes, pipes, cigars, hookah, water pipes and other locally produced smoking tobacco products, e.g. chuttas, dhumti and chillum. Smokeless tobacco use consists of chewing pan (mixture of lime, pieces of areca nut, tobacco and spices wrapped in betel leaf), chewing gutkha or pan masala (scented tobacco mixed with lime and areca nut, in powder form), khaini and mishri. India is one of the fewer countries in the world where prevalence of dual use of smoking and smokeless tobacco is high.[6] In India, cigarette smoking comprises a small part of the tobacco smoking problem and a minor part of the overall tobacco problem, a major problem being beedi smoking and the oral use of smokeless tobacco products.

The present study was conducted to evaluate the prevalence of tobacco use and associated oral lesions among the patients reporting to the dental department OPD at a tertiary care centre in Rewa (M.P). The interpretations of the study will help in understanding the epidemiology of tobacco problem in this region and developing and implementing locally relevant tobacco intervention strategies.

METHODS

A hospital-based cross-sectional study was conducted at the Department of Dentistry, Shyam Shah Medical College and associated Sanjay Gandhi Memorial Hospital, Rewa (M.P) from April 2015 to June 2015. The catchment areas of the hospital are Rewa city, the rural areas and the surrounding districts (Panna, Satna, Sidhi, Singrauli, Shahdol, Anuppur and Umaria). Children below the age of 10years were not included in the study. Out of the 5185 patients of age 10 years and above reporting to the outpatient department, 1285 (24.78 %) patients admitted that they have a habit of tobacco use in some form. Out of 1285 patients 1178 patients gave consent for participating in the study. The patients were interviewed through a pre-tested, pre-structured questionnaire to collect data on the demographic data, reason for initiation, form of tobacco used, frequency of consumption and duration for tobacco use. The questions were explained to them in simple and understandable language. The patients were clinically examined for any tobacco related oral lesions. Any respondent using tobacco "up to 5 times/ day" was categorized as a light tobacco user, "between 6 to 20 times/ day" as a moderate tobacco user, and ">20 times/ day" was classified as a heavy tobacco user.[7]

Statistical analysis

The data collected were cleaned, compiled and tabulated and analyzed using Microsoft Excel. Chi-square test was used to evaluate the presence of a statistically significant difference between the gender and the variable characteristics.

RESULTS

In the study population of 5185 subjects reporting to dental OPD for some dental problem, 1285 (24.78%) subjects were found to have tobacco consumption habits. 1178 patients gave consent for participating in the study. 893 (75.80%) were males and 285 (24.19%) were females. In the study population 23.94% of the tobacco users were in the age group of 21-30 years. For male users the most common age group was 21-30 years with 249 (27.88%) subjects belonging to the same, while for female users the most common age group was 41-50 years consisting of 67 (23.51%) subjects. The age and gender of the subjects were found to be very strongly associated ($\chi 2 = 78.93$; $P < 0.01$) as far as the tobacco consumption was concerned (Table 1).

Table 1: Gender wise distribution of tobacco users according to age and educational qualification and the form tobacco used.

Determinant	Males (N=893)		Females (N=285)		Total (N=1178)	
	n	%	n	%	n	%
Age group (in years)						
11-20	162	18.14	19	6.67	181	15.36
21-30	249	27.88	33	11.58	282	23.94
31-40	168	18.81	58	20.35	226	19.18
41-50	113	12.65	67	23.51	180	15.28
51-60	119	13.32	64	22.46	183	15.53
>60	82	9.18	44	15.44	126	10.69
Educational qualification						
Illiterate	129	14.44	71	24.91	200	16.97
Primary School	215	24.08	56	19.64	271	23.00
High school	236	26.43	63	22.10	299	25.38
Intermediate	184	20.60	53	18.59	237	20.11
Graduate	101	11.31	35	12.28	136	11.54
Post graduate	28	3.13	7	2.45	35	2.97
Form of tobacco used						
Smoked	398	44.56	47	16.49	445	37.77
Smokeless	279	33.25	197	69.12	476	40.40
Both	216	24.18	41	14.38	257	21.82

In the present study population 16.97% tobacco consumers were illiterate, 20.11% had completed their school education, 11.54% were graduates and only 2.97% were post graduates (Table 1). The difference between the incidence of tobacco users in relation to their educational status and gender was statistically highly significant ($\chi 2 = 16.79$; $P < 0.01$).

Smoked form of tobacco was used by 445 (37.77%) subjects; smokeless forms were used by 476 (40.40%) subjects. The dual use of both the forms was reported by 21.82% of the subjects. Smoked form was the preferred form used by 44.56% males followed by smokeless form (33.25%) whereas for majority of females (69.12%) smokeless tobacco was the preferred form (Table 1).

Maximum number of tobacco users (23.96% males and 33.33% females) did not specify any reason that led to the initiation of the habit. The most common reason given by males that initiated the addiction was fascination to adopt tobacco because it was used by friends (19.14%) followed by use by a close family member (14.78%). Among females the most common reason for initiation of habit was use of tobacco by a close family member (20.35%). Peer pressure also influenced a considerable number of males (12.20%) for indulging in tobacco use (Table 2).

Table 2: Gender wise distribution of subjects according to the reason for initiation of tobacco use.

Reason	Male (N=893)		Female (N=285)	
	n	%	n	%
Peer pressure	109	12.20	11	3.85
Use by family	132	14.78	58	20.35
Use by friends	171	19.14	43	15.08
Stress	76	8.51	30	10.52
For style/fashion	67	7.50	3	1.05
Imitating a role model	14	1.56	6	2.10
Boredom	51	5.71	13	4.56
Cleaning of teeth/toothache	59	6.60	26	9.12
No specific reason	214	23.96	95	33.33

Majority of the subjects (55.77%) used tobacco 6-20 times daily and were moderate tobacco users. Use less than 5 times was reported by 31.23% and use more than 20 times by 12.98% of the study population (Table 3).

Table 3: Distribution of subjects according to the frequency/day of tobacco use (N=1178).

Frequency /day	n	%
<5 times	368	31.23
6-20 times	657	55.77
>20 times	153	12.98

Subjects that reported tobacco use for less than a year accounted 10.44% of the study population, 16.63% reported 1-5 years of use and 18.93% of tobacco users gave a history of 6-10 years of tobacco consumption, while more than 10 years duration was reported by 53.96% tobacco users (Table 4). Discontinuation of the habit was difficult for 27.76% users because of the feeling of not being able to work efficiently until tobacco was consumed (Table 5).

Table 4: Distribution of subjects according to duration of tobacco use (N=1178).

Duration of tobacco use	n	%
<1year	123	10.44
1-5 years	196	16.63
6-10 years	223	18.93
11-15 years	179	15.19
16-20 years	186	15.78
21-25 years	143	12.13
>25 years	128	10.86

Table 5: Common reasons given by subjects that deter them from discontinuation of the habit.

Provocative factors	Male (N=893)		Female (N=285)		Total (N=1178)	
	n	%	n	%	n	%
For morning toilet	91	10.19	82	28.77	173	14.68
Feeling of being able to work efficiently	278	31.13	49	17.19	327	27.76
Peer pressure	97	10.86	34	11.92	131	11.12
Used as refreshment from work	147	16.46	59	20.70	206	17.48
Getting rid of boredom	63	7.05	52	18.24	115	9.76
Feeling of stress buster	117	13.10	09	3.15	126	10.70

Tobacco related oral mucosal lesions were seen in 508 (43.12%) subjects, out of them 439 were males and 69 were females (Table 6). The association between the presence of oral lesions and the gender proved to be highly statistically significant ($\chi 2 = 54.83$; $P < 0.01$).

Table 6: Distribution of subjects according to presence of oral mucosal lesions.

Oral mucosal lesion	Males (N=893)		Females (N=285)		Total (N=1178)	
	n	%	n	%	n	%
Lesion present	439	49.16	69	24.21	508	43.12
Lesion absent	454	50.84	216	75.79	670	56.88

Out of study population 1178 tobacco induced hyperkeratosis was seen in 375 subjects (31.83%), 338 males and 37 females. The prevalence of leukoplakia and oral submucous fibrosis was 3.31% and 5.43%

respectively. Other mucosal lesions such as smokers palate, lichen planus, cancer, erythroplakia were present in 2.55% of the study population (Table 7).

Table 7: Distribution of oral lesions in tobacco users.

Type of lesion	Males (N=893)		Females (N=285)		Total (N=1178)	
	n	%	n	%	n	%
Tobacco hyperkeratosis	338	37.85	37	12.98	375	31.83
Leukoplakia	31	3.47	8	2.80	39	3.31
Oral submucous fibrosis	49	5.48	15	5.26	64	5.43
Others (smokers palate, lichen planus, cancer, erythroplakia)	21	2.35	9	4.86	30	2.55

DISCUSSION

In India, in 1990, 1.5% of total deaths were related to tobacco use. Tobacco consumption is growing at a rate of 2-3% per annum and it may account for 13% of all deaths caused due to non communicable diseases by the year 2010.[8] Tobacco causes over 20 categories of fatal and disabling diseases including cancer, cardiovascular and chronic respiratory diseases.[4] Tobacco smoking causes cancer of the lung, oral cavity, nasopharynx, oropharynx and hypo-pharynx, nasal cavity and paranasal sinuses, larynx, esophagus, stomach, pancreas, liver, kidney, ureter, urinary bladder, uterine cervix and myeloid leukemia of the bone marrow.[9]

Forty percent of the tuberculosis burden in India may be attributed to passive or active exposure to tobacco smoke.[10] Smokeless tobacco is an important etiological factor in cancers of the mouth, lip, tongue and pharynx.

The overall prevalence of tobacco use in our study was 24.78% with 1285 users which was lower than that reported by Chaudhry et al. i.e. 29.6% in Karnataka and 34.6% in Uttar Pradesh[11] but higher than 16.38% reported by Kasat et al.[12] Tobacco use in India has been higher among males than among females in India. In our study population of 1178 tobacco users, 893 (75.80%) were males and 285 (24.19%) were females. Male predominance seen in this study was in accordance with other studies.[12,13] The prevalence of tobacco use in females (24.19%) was similar to the findings of the Global Adult Tobacco Survey (GATS), conducted by the Union Ministry of Health and Family Welfare (2010),which reported that 20.3 percent of females - 15 years and above - consume tobacco in some form or the other.[5] Tobacco consumption among females was mostly in the form of smokeless tobacco which was in accordance with many studies but contrary to the study by Sinha, Gupta and Pednekar[14] which reported 21.7% females were smokeless tobacco users and 23.4% were smokers. Majority of subjects 55.77% were moderate tobacco users with a frequency of consumption between 6-20 times per day.

The prevalence of oral lesions in tobacco users in our study was 43.12% which was in accordance to 49.52% reported by Kasat et al.[12] and more than 26.8% reported by Patil et al.[15] but less than 73.8% reported by Chandra P and Govindraju P.[16] Tobacco induced hyperkeratosis was recorded in 31.83% users which was less than that reported by Kawatra et al. (67.58%) in their study.[17]

The overall prevalence of leukoplakia (3.31%) was similar to the study by Chandra P and Govindraju P who reported leukoplakia in 3.5% of patients,[16] but low in comparison to the study by Patil et al. which reported a prevalence of 8.2% in patients with tobacco smoking, chewing, and mixed habits.[15]

The prevalence of oral submucous fibrosis in the present study was 5.43% which was less in comparison to 7.1% reported by Patil et al.[15] but comparatively higher than observed by Gupta et al. (3.2%) among the general population of Bhavnagar, Gujarat.[18]

This was a small study with less sample size; large-scale epidemiological studies should be designed for better understanding of tobacco use and its associated factors. The diagnosis of lesions was based mainly on clinical findings rather than on histopathology because of the unwillingness of majority of the participants with oral lesions for biopsy.

Most tobacco use begins in early adolescence and 88% of the first use of cigarettes is reported before age of 18 years.[19] The risks of tobacco use are highest among those who start early and continue its use for a long period.[20] The prime concerning factor derived from this study is 15.36% of all tobacco users were in age group 11-20 years. The early age of initiation mandates the urgent need to intervene and protect this vulnerable group from succumbing to this hazardous addiction.

CONCLUSION

Tobacco use imposes a huge burden of disease in India. Complications arising due to tobacco consumption cause financial burdens on people and the government. The urgent need of intervention to curb the use of tobacco and its products lies in the fact that many teenagers are

embracing the addiction. It's a high time that Tobacco control policies in India should adopt a targeted, population-based approach to control and reduce tobacco consumption in the country. Implementation of strict legislation to control tobacco, tobacco tax increases, the dissemination of information about the health risks from tobacco use in form of mass oral health education programs and increased access to cessation therapies may prove to be effective in reducing tobacco use. Tobacco cessation training should be made mandatory in education and training of health care professionals so that they can effectively implement tobacco cessation advice in their routine health care practice.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: Not required

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Cite this article as: Mishra A, Sharma D, Mishra Tripathi G, Adhikari P, Kabirpanthi V, Kumar M. Pattern and prevalence of tobacco use and associated oral mucosal lesions: a hospital based cross sectional study at a tertiary care hospital in central India. Int J Res Med Sci 2015;3:2169-73.