



Original Research Article

Study of Prevalence of Oral Lesions in Tobacco Addicted Workers and its impact on Oral Health in a Rural Tertiary Care Center

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Abstract: Introduction: India experiences one of the highest rates of oral cancer worldwide, with a notable prevalence of precancerous oral conditions such as leukoplakia and oral submucous fibrosis. Tobacco consumption poses a significant health risk, leading to various forms of oral and lung cancers. This study seeks to assess the prevalence of oral lesions among tobacco-addicted workers.

Objectives:

1. Assess the impact of tobacco smoking on oral health, focusing on the risks of oral cancer and precancerous lesions.

2. To Study the prevalence of oral lesions among the participants. **Materials and Methods:** A cross-sectional study was conducted over six months among non-teaching staff at a rural tertiary care hospital. A purposive sampling method was used to select 250 participants. Data were collected through a self-administered closed-ended questionnaire and face-to-face interviews. Statistical analysis was performed using descriptive statistics, chi-square tests, and percentage calculations. **Results:** Among the 250 workers surveyed, 23.6% (59 individuals) reported tobacco addiction. Smokeless tobacco was used by 86.4% of the addicts, while 13.6% used smoked tobacco. A significant association was found between gender and tobacco addiction, with males showing higher prevalence. The analysis showed that 56 out of 59 tobacco-addicted workers had oral lesions, including dental stains (13.6%), periodontal disease (6.0%), and other conditions like keratotic patches, palatal abrasions, black hairy tongue, and smokers' melanosis. **Conclusion:** Tobacco use among non-teaching staff in healthcare settings is found to be high. Effective strategies are needed to address the high prevalence of tobacco use and its adverse effects.

Keywords: Tobacco addiction, oral lesions, smoking, precancerous lesions, oral cancer.

INTRODUCTION

Consumption of tobacco in any form poses a deleterious effect not only on an individual's health but also on the community as a whole. Smoking tobacco is the major cause of lung cancer, chronic obstructive pulmonary disease (COPD), peripheral vascular disease, and various throat and mouth cancers.¹ In addition to this, it also presents as a fatal outcome on the oral health mainly, such as development of periodontal diseases of the gum and other precancerous lesions.² One of the nations with the highest rates of oral cancer worldwide is India. It has been demonstrated that oral precancerous lesions and diseases including oral leukoplakia and oral submucous fibrosis (OSF) frequently develop into mouth cancer.³

Hence it is speculated that chewing tobacco, pan masala, and other similar products may increase the chance of developing mouth cancer and precancerous lesions. The aim of the current research study was to evaluate the relative occurrence of these conditions, to understand the clinical profile of people with oral precancerous lesions of oral cancer addicted to tobacco and to spread awareness regarding the harmful effects of the same.

Objectives:

1. To study the prevalence of tobacco addiction amongst workers.
2. To study the prevalence of oral lesions.

Materials and Methods: -

The permission from the head of the institute and clearance from the Institutional Ethics Committee was obtained. A cross-sectional hospital based study was conducted among the non-teaching staff in a tertiary care hospital to gauge the prevalence of tobacco addiction and prevalence of associated oral lesions. The duration of our study was six months and selection of the study participants was done by purposive sampling. All non-teaching staff that was willing to participate was included in the study.

A physical, self-administered, closed ended questionnaire was developed using pre-validated questions. The questionnaire consisted of twelve questions further divided into two parts, 1) Demographic data 2) Addiction based questions. The data was collected by a face-to-face interview on a study questionnaire. The participants were informed about the study and consent was taken prior to the start of the study. All the collected data was then compiled in spreadsheets (Microsoft Excel 2016), and was statistically analyzed using descriptive statistics, where the P value was 0.5. The data was analyzed by using various statistical tests like percentage and chi square test.

RESULTS

Out of the 250 workers surveyed, 59 individuals (23.6%) reported being addicted to tobacco abuse and out of the 59 tobacco addicts, 51 workers used smokeless tobacco by mode of chewing direct tobacco. Eight out of fifty-nine addicts used a smoked form of tobacco, mostly being the cigarette.

Table No.1. Distribution of study subjects according to age and gender

Age (in years)	Male		Female		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
19-25	31	58.5	22	41.5	53	21.2
26-30	24	34.7	45	65.2	69	27.6
31-35	16	31.3	35	68.6	51	20.4
36-40	09	23	30	77	39	15.6
41-45	05	41.6	7	58.3	12	4.8
46-50	07	53.8	6	46.1	13	5.2
>50	06	46.1	7	53.8	13	5.2
Total	98	39.2	152	60.8	250	100

Table No.1 presents the distribution of study subjects based on their age and gender. The table provides a breakdown of the number and percentage of males and females in each age group. Overall, as observed, the age group ranging between 26-30 years showed the highest percentage of addicted study subjects from the total study population, accounting to 27.6% and also the highest percentage of female participants being addicted to tobacco, that being 65.2%. In contrast, the age group ranging between 41-45 years showed the least percentage of workers being 4.8% having an addiction to tobacco in any form.

Table No. 2. Comparison of Addiction among male and female study subjects

Addiction	Male		Female		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
Yes	44	17.6	15	6	59	23.6
No	54	21.6	137	54.8	191	76.4
Total	98	39.2	152	60.8	250	100

$\chi^2 = 40.55$ $df = 1$ $P = <0.00001$

This is an analysis of tobacco addiction by gender. The chi-square value in this case is 40.55, with degree of freedom being 1 and calculated the p-value as <0.00001 which shows that the results are highly

significant in the study.

Based on the results, the p-value is less than the conventional significance level of 0.05, suggesting strong evidence of a significant association between gender and tobacco addiction. Specifically, the statement "Males were more addicted than females" indicates that there was a higher prevalence of tobacco addiction among males as compared to females in the surveyed population.

Table No. 3. Distribution of Study subjects according to Addiction and Educational Status

Education	Addiction				Total	
	Yes (Number)	Percentage	No (Number)	Percentage	Number	Percentage
Illiterate	7	11.8	42	21.9	49	19.6
Primary school	4	6.7	06	3.1	10	4
Middle school	10	16.9	20	10.4	30	12
High school	9	15.2	15	7.8	24	9.6
Junior college	8	13.5	14	7.3	22	8.8
Diploma	5	8.4	62	32.4	67	26.8
Graduation	11	18.6	24	12.5	35	14
Masters	4	6.7	09	4.7	13	5.2
Total	59	100	191	100	250	100

Among the total study subjects, 11.8% of illiterate individuals had addiction, while 21.9% did not. Interestingly, individuals with primary school education had the lowest contributory percentage of just 4% out of the total addicted study group subjects. Conversely, the literate population holding a diploma degree had the highest percentage of tobacco addicted individuals, that being 26.8%.

Table No.4. Comparison of Addiction among Literate and Illiterate study subjects

Education	Illiterate		Literate	
	Number	Percentage	Number	Percentage
Addiction				
Yes	7	14.2	52	25.8
No	42	85.7	149	74.1
Total	49	100	201	100

$\chi^2 = 2.933$ df = 1 P = 0.08683

This table analyzes the association between education level and tobacco addiction. The chi-square value in this case is 2.933, with degree of freedom being 1 and calculated the p-value is reported as 0.08683. which shows that the results are non-significant in the study.

The p-value is greater than the conventional significance level of 0.05, indicating that there is not enough evidence to suggest a statistically significant association between education level and tobacco addiction. In other words, the data does not provide strong support for the claim that education level plays a significant role in tobacco addiction. Although, it is amusing to note that even after knowing how to read and write and understand the harmful effects of tobacco on a human body, literate population comprised of the highest percentage of tobacco addicted study subjects as compared to the illiterate population of the study.

The prevalence of tobacco addiction was observed among workers regardless of their educational background. This suggests that education level may not have a substantial influence on tobacco addiction in the surveyed population.

Table No. 5. Distribution of study subjects according to duration of addiction

Duration (in years)	Number	Percentage
0-5	21	35.5
6-10	16	27.1
>10	22	37.2
Total	59	100

The duration of addiction varied amongst the workers. Out of the surveyed workers, 27.1% of individuals reported having been addicted to tobacco for the least amount of duration of 6 to 10 years. 37.2%

of individuals reported being addicted to tobacco for more than 10 years making it as the longest duration of consumption of tobacco and its addiction. Notably, one person had been addicted for a considerable period of 40 years.

Table No. 6. Distribution of study subjects according to frequency of addiction

Frequency (times/day)	Number	Percentage
0-5	39	66.1
6-10	20	33.8
>10	0	0
Total	59	100

The frequency of tobacco intake whether in smoked or smoke-less form ranged between 0-10 times a day. Amongst the surveyed workers, 66.1% individuals reported using tobacco 0 to 5 times per day making it the 20 workers reported using tobacco between 6 and 10 times per day 6 to 10 times per day. None of the surveyed workers were using tobacco more than 10 times per day.

EFFECTS OF TOBACCO USE IN ORAL CAVITY

56 of the 59 tobacco addicted workers had effects of tobacco in their mouth, on checking the oral cavity of the cohort.

Table No. 7. Lesions present in the oral cavity

Lesions	Number of individuals	Percentage
Dental stains	34	13.6
Periodontal disease	15	6.0
Keratotic patches	2	0.8
Palatal abrasions	2	0.8
Black hairy tongue	2	0.8
Smokers' melanosis	1	0.4
Total	56	

The percentages are calculated based on the total number of surveyed individuals, which is 250. The presence of lesions among the surveyed individuals was as follows

1. Dental stains: Out of the 250 surveyed individuals, 34 had dental stains as a type of lesion.
2. Periodontal disease: 15 individuals were found to have periodontal disease, which is a type of gum disease that can lead to tooth loss if left untreated.
3. Keratotic patches: 2 individuals had keratotic patches, which are thickened or hardened areas of the oral mucosa.
4. Palatal abrasions: 2 individuals were identified as having palatal abrasions, which are injuries or wounds on the roof of the mouth.
5. Black hairy tongue: 2 individuals had black hairy tongue, a condition where the tongue's surface becomes discolored and appears hairy or furry.
6. Smokers' melanosis: 1 individual had smokers' melanosis, which is characterized by dark pigmentation on the oral mucosa, typically caused by tobacco use.

DISCUSSION

According to the Indian Global Adult Tobacco Survey, 163.7 million of India's 274.9 million tobacco users use smokeless tobacco, 68.9 million smoke cigarettes, and 42.3 million use both smoking and smokeless tobacco. Oral Cancer is the sixth most common malignancy in Asia. South-Central and Southeast-based developing nations including India, Pakistan, Bangladesh, Taiwan, and Sri Lanka have significant incidence rates. After stomach and cervical cancers, Oral Cancer is the third most prevalent kind of cancer in developing nations.⁵

In our survey we found that there were statistically significant results about gender predilection and tobacco abuse where we observed a strong male predilection which is in hand to the study done by A.I. Zavras et al⁶, where they also found women who smoked to be less than the number of men.

Our data does not provide strong support for the claim that education level plays a significant role in tobacco addiction, which is again parallel to what was observed by A.I. Zavras et al⁶ and Joshua E. M et al⁷.

The part of the cohort who were addicted had associated oral lesions when we examined them, this is similar to a study done in an Italian hospital in 2010 showing that tobacco addiction is not a localized problem but is a global issue.⁸

Conclusion:

The issue of tobacco utilization among the workers/auxiliary/support staff in a health care setup is gravely overlooked. These people hold a pivotal position in influencing and reducing tobacco use among the general population by virtue of their practice. The significant prevalence of tobacco consumption within these specific groups, particularly in countries with moderate and low income, is a matter of concern, emphasizing the need for targeted interventions to address this problem effectively.

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