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Original Research Article

Assessment and association of tobacco affecting oral health of workers of a factory

Shreyans D. Singhvi[1]*, Preksha T. Singh[2], Rafe Khan[1]

[1]Department of Internal Medicine, Sardar Vallabhbhai Patel Institute of Medical Sciences and Research, Ahmedabad, Gujarat, India.
[2]Department of Internal Medicine, N.H.L Municipal Medical College, Ahmedabad, Gujarat, India

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***Correspondence:**
Dr. Shreyans D. Singhvi,
E-mail: shreyanssinghvi4@gmail.com

ABSTRACT

Background: Occupational health diseases have become severe in the present scenario of the world. In our study, we assessed the oral health of the workers along with association of factors affecting the oral health. The factor mainly studied was tobacco consumption. Thus, the study is extremely important to study the oral health of workers as they are more prone to develop oral lesions and less likely to access medical help for the same.
Methods: A cross sectional study of 240 workers of a textile factory was studied using a structural self-constructed questionnaire was used in the study. A well informed verbal consent was taken by the participants of the study. It had open and closed ended questions. Further, oral health of the workers were assessed with current and past history, medical history and addiction his-tory. Oral health was checked and the oral lesions of the participants were studied. Oral le-sions as well as pre-malignant and malignant oral lesions were studied.
Results: During the study it was found that maximum participants reported of tobacco chewing (50.41%), while males reported of tobacco addiction history more than females. Oral health was assessed and oral lesions were examined. 62% of the participants had no oral lesions while 38% participants presented with oral lesions. Positive association between tobacco consumption and oral lesions was found.
Conclusions: Addiction history is very important during examination of oral health, as tobacco and alcohol are major factors affecting oral health.

Keywords: Addiction, Health, Oral, Tobacco

INTRODUCTION

Occupational health diseases have become severe in the present scenario of the world, it is due to several reasons, one of the major reasons is the active industrialization of the world. In the last century various industries are growing each and every day in various fields in multiple countries. The workers of the industries are affected the worst as they have prolonged working hours, bad working conditions and less reach to health care facilities.

In our study, we assessed the oral health of the workers along with association of factors affecting the oral health. The main factor studied was the consumption of tobacco affecting the oral health. According to WHO, the tobacco epidemic is one of the biggest public health threats the world has ever faced, killing more than 8 million people a year around the world. More than 7 million of those deaths are the result of direct tobacco use while around million are the result of non-smokers being exposed to second-hand smoke.[1,2] Another factor studied was alcohol

consumption- tobacco smoking in any form when combined with heavy alcohol consumption has been identified as the primary risk factor for approximately 80% of oral malignancies.[1] Thus, the study is extremely important to study the oral health of workers as they are more prone to develop oral lesions and less likely to access medical help for the same.

METHODS

A cross-sectional study of 240 industrial workers working in a cotton textile industry, Mahalaxmi Mills, Narol, Ahmedabad, was undertaken from November 2019 to December 2019. Selection of subjects for the sample included the workers working in Mahalaxmi Enterprises, a cotton textile industry in Ahmedabad. It comprised of 240 workers who were already exposed to irritants directly and indirectly and were having similar age group and socio-economic status.

Inclusion criteria

Workers working in the day shift of the factory, workers with minimum one year of exposure, workers in the age group of 18-50 years, workers who gave well informed verbal consent to participate in the study were included.

Exclusion criteria

Workers who were absent during the study and workers who did not give the consent to the study were excluded.

A structural self-constructed questionnaire was used in the study. A well informed verbal consent was taken by the participants of the study. It had open and closed ended questions. Further, oral health of the workers were assessed with current and past history, medical history and addiction history. Oral health was checked and the oral lesions of the participants were studied. Oral lesions as well as pre-malignant and malignant oral lesions were studied. The sampling technique used was purposive. The data was compiled and analyzed using Google Spreadsheets. To find the association between different factors the statistical method of chi-square test and p value was taken. A null hypothesis was formed with no association taken into consideration and chi-square values and p value was calculated to find the possible association between the decided factors.

The confidence interval taken for p-value is 90% with 0.01 level of significance. Values corresponding <0.01 are found significant, the null hypothesis stands void and the factors are found to be associated for 99% confidence level.

RESULTS

The participants of the study were 240, out of which, there were 216 males and 24 females (Table 1). The age group of the workers was 18-50 years of age. Maximum participants (53%) were in the age group of 25-40 years of age and from that maximum (19.6%) were in the 30-34 age group (Table 2).

Table 1: Gender wise distribution of workers.

Gender	Number	Percentage
Male	216	90
Female	24	10
Total	240	100

Table 2: Age-wise distribution of workers.

Age group (years)	Total number of workers	Male	Female
18-22	9	7	2
22-26	24	23	1
26-30	40	38	2
30-34	47	41	6
34-38	41	35	6
38-42	33	30	3
42-46	19	18	1
46-50	27	24	3
Total	240	216	24

In the questionnaire, addiction history of the participants was taken, during which it was found that maximum participants reported of tobacco chewing (50.41%), while males reported of greater tobacco addiction history than females. Amongst tobacco users, chewing tobacco was most prevalent amongst both male and female workers. Smoking as an individual entity was not present as all smokers also chewed tobacco (Table 3). Further, current tobacco as well as alcohol consumption was studied. In this, maximum males reported of tobacco consumption, while some reported of alcohol consumption as well (Table 4).

Table 3: Addiction history of workers.

Addiction history	Male		Female		Total	
	Number	%	Number	%	Number	%
Tobacco chewing	116	53.7	5	20.83	121	50.41
Tobacco chewing + smoking	10	4.63	0	0	10	4.16
None	90	41.67	19	79.17	109	45.43
Total	216		24		240	100

Table 4: Tobacco and alcohol consumption.

Tobacco and alcohol consumption	Male (n=216)		Female (n=24)		Total	
	Number	%	Number	%	Number	%
Tobacco consumption	126	58.34	5	20.83	131	54.58
No tobacco consumption	90	41.66	19	79.17	109	45.42
Alcohol consumption	19	8.8	0	0	19	7.92
No alcohol consumption	197	91.2	24	100	229	92.08
Total	216		24		240	

Table 5: Various oral lesions found in the workers.

Oral lesion	Male		Female		Total	
	Number	%	Number	%	Number	%
Leukoplakia	19	20.8	2	2.1	21	22.9
OSF*	38	41.7	4	4.3	42	46
Dental caries	15	16.4	1	1.09	16	17.49
Ulcer	10	10.9	2	2.1	12	13
Total	82		9		91	100

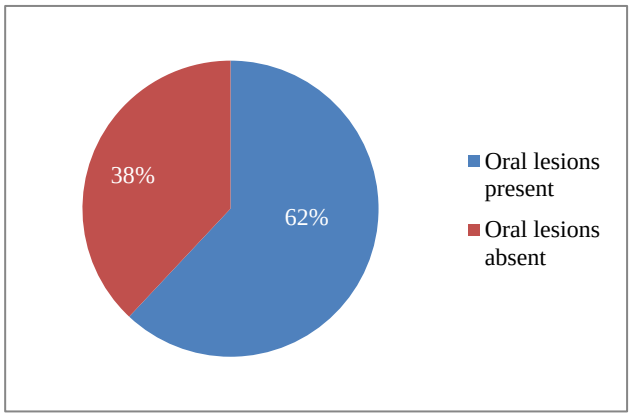

Figure 1: Oral lesions assessment of the workers.

Furthermore, oral health was assessed and oral lesions were examined. 62% of the participants had no oral lesions while 38% participants presented with oral lesions (Figure 1).

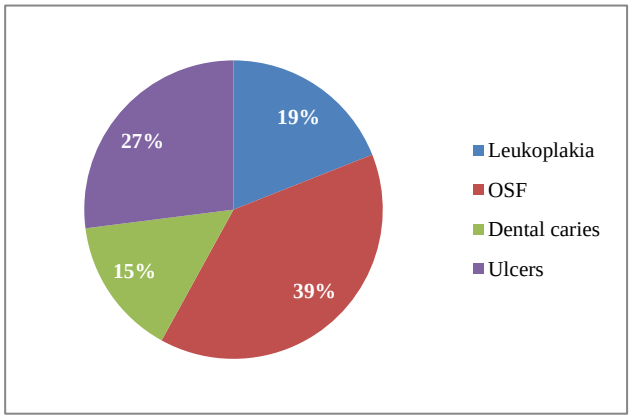

Figure 2: oral ulcers in males.
*Osf- oral submucosal fibrosis.

The maximum number of males -54% presented with oral submucosal fibrosis, while 66.66% females presented with oral submucosal fibrosis amongst the 20.83% of the participants presenting with an oral lesion. (Figure 2, Figure 3).

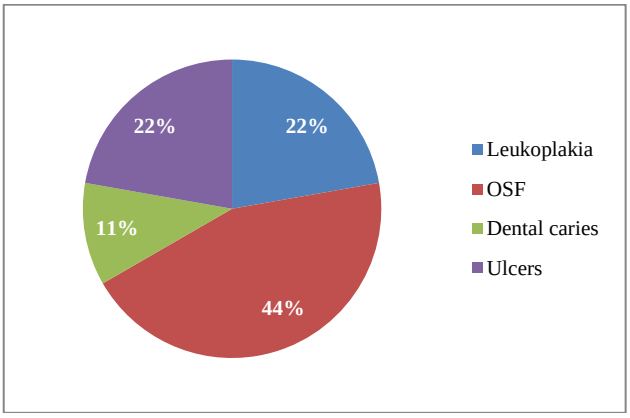

Figure 3: Oral ulcers in females.
*OSF- oral submucosal fibrosis.

The oral lesions of the workers were studied and they were categorised according to the lesions found. Maximum workers reported of oral submucosal fibrosis, while the least reported of oral ulcers (Table 5).

Further, association between tobacco users and premalignant lesions was studied. A null hypothesis was formed indicating no association between oral premalignant lesions and the use of tobacco, After statistical analysis, Chi-square test found was -57.302803458465 and the p value found was <0.00001. As, p value found was <0.1, the null hypothesis stands void and there is a positive association between tobacco consumption and premalignant lesions found.

Table 6: Association of premalignant oral lesions and tobacco consumption.

Exposure	Total	Oral lesions present	Pre-malignant lesions absent
Current tobacco users	131	78	53
Non-users	109	13	96

DISCUSSION

During the study, those with abnormalities were referred to ESIS for further examination and appropriate treatment. The deteriorating effects of tobacco usage on oral health are now well recognized. In the tobacco users, there is a recorded higher prevalence of periodontal diseases, candidiasis, and with oral malignancies.[2-5] There are several published re-searches attributing the tobacco consumption causing oral health burden on the population, and have recommended the need for not only the otolaryngologitsts but also dental profession individuals to get involved with tobacco intervention.[6,7] Smokers are usually found with discoloured teeth and it is found in some articles that tobacco might even cause dental decay as it lowers salivary pH which protects teeth from decay. Not only dental discolouration, smoking is also found to cause halitosis which may affect smell and taste, as well as generalised melanosis of the oral mucosa. It's also found that acute necrotising ulcerative gingivitis (ANUG) has been shown to be associated with heavy smoking.

There is fair evidence that tobacco use is a major factor in the progression of periodontal disease.[8-11] Tobacco smoking is a risk factor for oral cancer as, there are 55 carcinogens in cigarette smoke that have been evaluated by the International Agency for Research on Cancer (IARC) and for which there is "sufficient evidence for carcinogenicity" in either laboratory animals or humans.[13]

There is also a problem of tobacco dependence as well. Tobacco smoking causes release of dopamine in the brain and later the person gets addicted to tobacco. Regularly users become addicted and may require assistance to quit. There are multiple treatments available to help in cessation of tobacco addiction. Advice to quit tobacco by doctors alone have shown to be effective. Brief advice given by a clinician lasting about 3 minutes can yield a cessation rate up to 5%.[14,15] There can be addition support given along the advice such as use of nicotine replacement therapy and pharmacotherapy. Pharmaco-therapy is proven to be effective, and several products are available; nicotine patches, nicotine gum, nicotine lozenge, nicotine inhaler and nicotine nasal spray.

According to U.S Public Health Service, there are 5 A's followed for tobacco cessation.[16]

Ask- about tobacco use, every patient/every visit, assess willingness to make a quit attempt, advice (those willing) to quit tobacco use. Those unwilling will need motivation to return to the topic at a later time, assist in quit attempt - set a quit date, emphasize total abstinence, prompt support seeking, provide supplementary material and recommend pharmacotherapy, arrange follow up and refer to a specialist clinic if the quit attempt has failed.

They are very helpful in accessing the patients with tobacco dependence.

CONCLUSION

This study has helped in acknowledging the health hazard faced by industrial workers with tobacco consumption. They are further frequently in close constant exposure to various chemicals which can lead to enhanced morbidity, financial crisis and even mortality. The study has tobacco as being a major factor causing oral pathology of the workers and it impedes routine health care and dental check-ups of the workers to prevent them leading to a future health hazard.

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