

ORIGINAL RESEARCH



Tobacco Abuse and Associated Oral Lesions among Interstate Migrant Construction Workers

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ABSTRACT

Aim: The present study was conducted to assess the prevalence of tobacco use and associated oral mucosal lesions among construction workers of Cochin, Kerala, India.

Materials and methods: A cross-sectional study was carried at various construction sites of Cochin and 2,163 workers were selected using multistage sampling method and were interviewed and examined. Information regarding demographic details, form, type, frequency of tobacco use, earlier attempt to quit, and willingness to quit tobacco use was obtained using predesigned questionnaire. The oral health status was recorded on the World Health Organization oral health assessment form 1997, and the examination was carried out under natural light using mouth mirrors and probe. Data thus collected were analyzed using Statistical Package for the Social Sciences version 17 (Chicago, Illinois, USA) statistical software package. Chi-square test was applied.

Results: Among the 2,163 workers, 1,952 were tobacco users and 211 were nonusers. Among the users, 1,021 use smokeless form, 372 use smoked form, and 559 use both. Premalignant lesions/conditions were more commonly seen with tobacco habit, with leukoplakia (14.75%) being the most common followed by oral submucous fibrosis in 201 (9.3%), candidiasis in 123 (5.7%), ulceration in 131 (6.05%), abscess in 59 (2.73%),

smokers palate in 58 (2.68%), lichen planus in 21 (0.97%), and malignant tumor in 2 (0.1%).

Conclusion: Commonness of abusive habits and oral premalignant lesions or conditions was considerable among the workers. Control and early diagnosis through workplace screening are the major backbones for the control of oral cancer.

Clinical significance: Building workers are unprotected from various health hazards at workplace. Lack of access to health services makes the situation unsatisfactory. Poor literacy and low socioeconomic status have resulted in practice of tobacco, smoking, and chewing in the majority of them. Hence, it is our responsibility to find and guide them with a proper oral health education.

Keywords: Cochin, Construction workers, Migrant workers, Tobacco users.

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INTRODUCTION

The intense tie between oral malignancies with tobacco use is well confirmed and documented. Tobacco user's count in the world has been reckoned at 1.2 billion, which is presumed to mount to 1.6 billion during 2020.¹

Kerala is a distinctive region in India with more than 50 of its total population (32 million) living in a nonrural area with low population growth.² Approximately 2.5 million migrant laborers from other states (interstate migrants) are working in Kerala.³ In 2016, this figure rose to 4 million.⁴ Kerala has been observing large invasion of migrant laborers not only from the nearby states but also from West Bengal, Odisha, Bihar, Uttar Pradesh, Uttarakhand, Assam, Manipur, and even from Nepal.⁵

Building workers are unprotected from various health hazards at workplace.⁶ The work is tough, manual work, usually under extreme conditions, such as unpleasant climatic conditions; the nature of work, working hours, lesser income, extreme living standards with short supply of basic services and detachment from their families, lack of job surety, and lack of access to health services make the situation unsatisfactory. They are mostly migrants from isolated villages, often are illiterate, have poor language skills, and are not vigilant about different preventive measures.⁷

Use of tobacco products is widely seen among construction workers in Cochin. Poor literacy and low socioeconomic status have resulted in the practice of tobacco, smoking, and chewing in the majority of them. In industrialized countries, smoking is proved to be the leading cause of 40 to 45% of all cancer deaths among males, around 90 to 95% deaths secondary to pulmonary cancers, approximately 85% of deaths due to oral malignancy, and around 35% of deaths due to underlying cardiovascular diseases.⁸ As there has been no such studies conducted on the construction workers regarding the prevalence of oral lesions due to tobacco using habits, an attempt was done to assess the prevalence of tobacco habits and associated lesions among the construction workers of Cochin.

MATERIALS AND METHODS

A cross-sectional study was conducted at different construction sites in Cochin from the March to July 2016. Permission from the Labour Commissioner of the Ernakulum district was obtained before the study. Permission for the study was granted by the Ethical Review Board of St. Gregorios Dental College (dated January 28, 2016, NO. SGDC/PHD/ERB/173R/2016). Written informed consent was obtained from each participant before examination. Workers between 14 and 55 years of age, who were present and willing for the survey, were included. Workers below 15 years of age and above 54 years of age were excluded. Workers were interviewed by trained interviewers through prepared questionnaire to collect the data that included name, age, gender, duration of tobacco use, type of tobacco used, and attempt for quitting tobacco use. Each item was a closed-ended question which was translated from English into Malayalam, backtranslated, and then, both versions were checked for reliability by the test-retest method. Each item was a multiple choice question with a single answer. There was no skip pattern; no multiple response questions and all questions were required to be answered. The questions were written at a language level that should have allowed comprehension by even the youngest participants.

Responses were measured based on the correct answer provided by each participant. Twenty participants were

pretested with the questionnaire to assess translation accuracy, validity, and suitable modifications before field administration. Reliability was assessed using Cronbach's alpha internal consistency coefficient (the value averaged 0.82). Study population was selected using multistage sampling method. Among 13 municipalities in Cochin, 5 (Kothamangalam, Muvattupuzha, Perumbavoor, Angamaly, and Aluva) were selected. Sample size was calculated by taking the least prevalence of oral precancerous lesion $n = 4pq/d^2$, where p = prevalence, $q = 100-p$, d = allowable error (5–20% of p) and hence, 2,163 was the sample size. From the selected five municipalities, various construction sites were randomly selected and from them 2,163 construction workers were selected.

After getting the necessary sanction from the labor commissioner, group leader of each construction site was approached and intention of the study was explained in detail. Investigator explained the procedure to the workers who were present at the site and they were interviewed and examined under his presence. Type I clinical examination was carried out. One trained and calibrated examiner performed all clinical examinations, with the trained recorder marking the observations. Before starting the survey, training was done for the examiner and the recorder in the Department of Public Health Dentistry, St. Gregorios Dental College. Further, the participants were examined by trained examiners for any oral lesions associated with their habit of tobacco usage. Lesions were confirmed by a specialist in oral medicine and radiology. Data were analyzed using Statistical Package for the Social Sciences version 17.0. Descriptive statistics included percentages, frequencies, and Chi-square tests, to find out significant mean differences ($p < 0.05$).

RESULTS

Table 1 shows that among the 2,163 construction workers, 1,982 (91.63%) were males and 181 (8.37%) were females. The majority (37.4%) of construction workers belonged to the age group 25 to 34 years, 69.81% of the workers were migrants; 59.13% were married, 40.96% were Hindus, 34.9% were illiterate, 69.81% were migrants, and 68.47% were from above poverty line.

Table 2 reveals that 1,952 (90.25%) were tobacco users which include 1,833 (84.74%) males and 119 (5.51%) females. Among the users, 682 (34.94%) used tobacco for about 6 to 10 years. Among the 1,952 tobacco users, 1,021 (52.3%) used smokeless form of tobacco, 372 (19.06%) used smoked form of tobacco, and 559 (28.64%) used both. Among the smokers, 311 (15.93%) used cigarette and 249 (12.76%) used bidis more often. Among the chewers, 623 (31.91%) used khaini, 558 (28.59%) used pan masala (Pan Parag), and 211 (10.81%) used betel quid with tobacco more often.

Table 1: Sociodemographic profile

Parameters	Number of workers (n = 2,163)
Gender	
Male	1,982 (91.63%)
Female	181 (8.37%)
Age group (years)	
15–24	581 (26.86%)
25–34	809 (37.4%)
35–44	484 (22.38%)
45–54	289 (13.36%)
Marital status	
Married	1,279 (59.13%)
Unmarried/separated	884 (40.87%)
Religion	
Hindu	886 (40.96%)
Muslim	693 (32.04%)
Christian	397 (18.36%)
Others	187 (8.64%)
Education	
Illiterate	755 (34.9%)
Primary	786 (36.34%)
Secondary	455 (21.04%)
Higher secondary	159 (7.35%)
Graduate	8 (0.37%)
State of origin	
Kerala	653 (30.19%)
West Bengal	845 (39.07%)
Bihar	339 (15.67%)
Assam	178 (8.23%)
Others	148 (6.84%)
Socioeconomic status	
APL	1,481 (68.47%)
BPL	682 (31.53%)

APL: Above poverty line; BPL: Below poverty line

Table 2: Distribution of participants according to tobacco usage

Parameters	Subcategory	Number of workers (%)
Tobacco users (N = 2163)	Users	
	Male (1,833)	1,952 (90.25%)
	Female (119)	
Non-users	Male (149)	211 (9.75%)
	Female (62)	
Duration of use (years) (n = 1952)	≤5	279 (14.29%)
	6–10	682 (34.94%)
	11–15	607 (31.1%)
	≥16	384 (19.67%)
Form of tobacco (n = 1952)	Smokeless form	1,021 (52.31%)
	Smoked form	372 (19.06%)
	Both	559 (28.63%)
Type of tobacco used more often (n = 1952)	Bidi	249 (12.76%)
	Cigarette	311 (15.93%)
	Pan	558 (28.59%)
	Betel quid	211 (10.81%)
	Khaini and other forms	623 (31.91%)

N: Total workers studied; n: Tobacco users

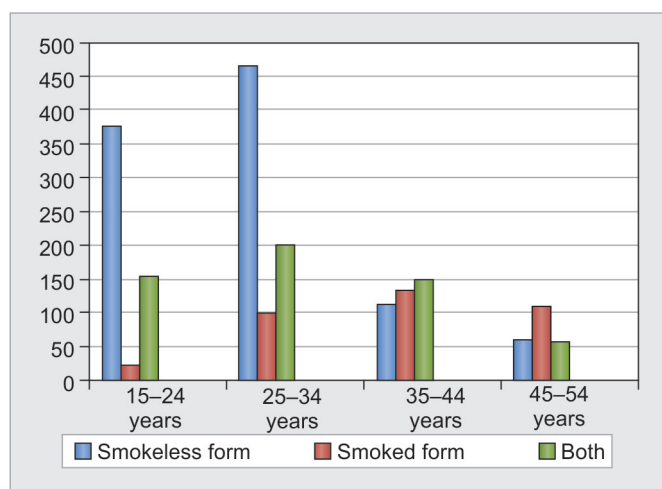
shows the penchant of younger population toward Khaini chewing. Pan masala prevalence (28.59%) was preferred next to khaini chewing, and this was mostly practiced by middle-aged population (25–34 years).

Among the 1,952 tobacco users, 218 (11.17%) users tried to quit tobacco earlier and 618 (31.66%) were willing to quit tobacco use (Graph 3).

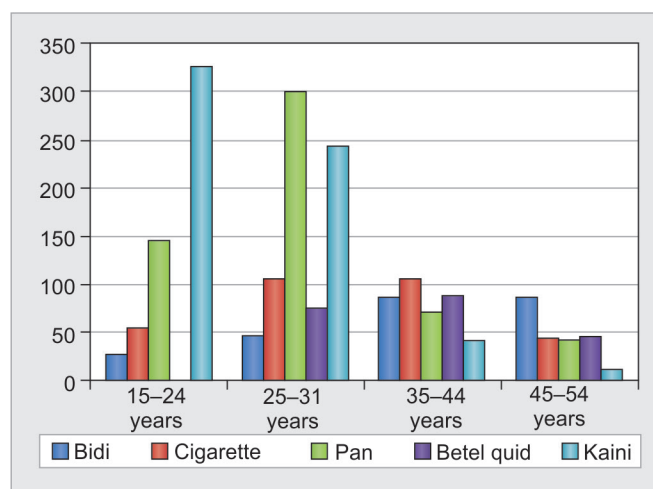
Table 3 reveals that among the 2,163 workers, 1,249 workers were found to have healthy oral mucosa. Premalignant lesions/conditions were more commonly seen with tobacco chewing habit, with leukoplakia (319, 14.75%) being the most common followed by oral submucous fibrosis (OSMF; 201, 9.3%), ulceration (131, 6.05%), candidiasis (123, 5.7%), abscess (59, 2.73%), smoker’s palate (58, 2.68%), lichen planus (21, 0.97%), and malignant tumor (2, 1%).

Smokeless form of tobacco was used more among the age group 15 to 34 years and smoked form among age group 35 to 54 years (Graph 1).

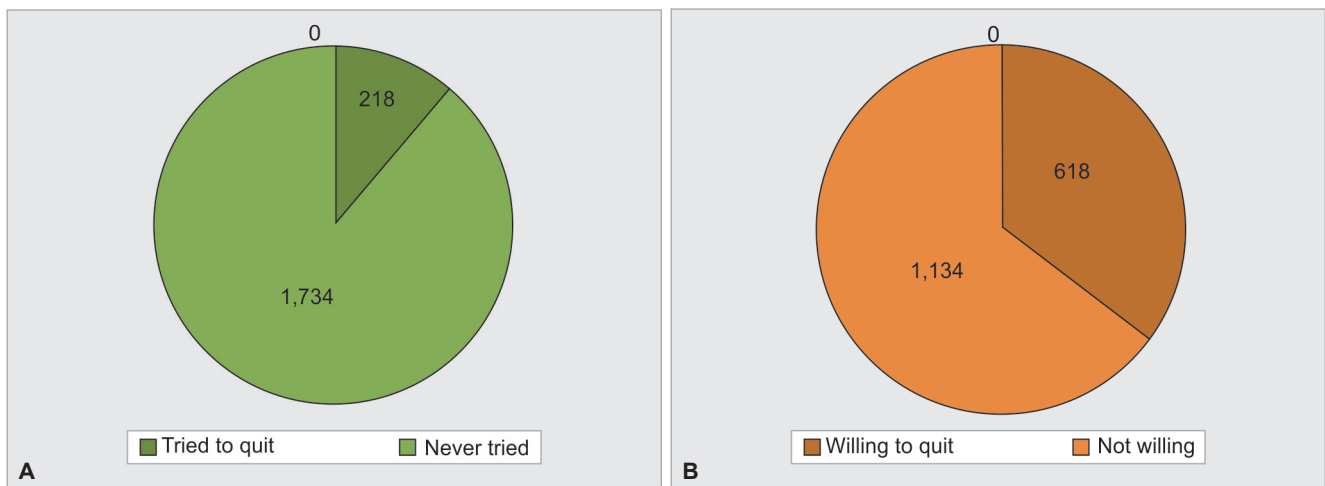
Graph 2 depicts that the common habit among the study group was khaini chewing (31.91%), especially among the younger age group of 15 to 24 years. This



Graph 1: Age-wise distribution of construction workers based on the form of tobacco used



Graph 2: Age-wise distribution of construction workers based on the different types of tobacco



Graph 3: Distribution of participants according to their attempt and willingness to quit tobacco

Table 3: Distribution of oral mucosal lesions among the participants

Oral mucosal lesions	Nontobacco users (n = 211)	Tobacco users (n = 1,952)	p-value
No abnormal condition	122	1,127	0.001**
Malignant tumor	0	2	0.10
Leukoplakia	0	319	0.001**
Lichen planus	3	18	0.02
Ulceration	53	78	0.01*
ANUG	0	0	0
Candidiasis	15	108	0.001**
Abscess	18	41	0.01*
Smokers palate	0	58	0.001**
OSMF	0	201	0.001**

ANUG: Acute necrotizing ulcerative gingivitis; OSMF: Oral submucous fibrosis; *Statistically significant; **Highly Significant

DISCUSSION

Current study was conducted among construction workers in various parts of Ernakulum district to estimate the prevalence of tobacco abuse and associated oral lesions in them. The reason for preferring construction workers was that instead of being the most integral part of urbanization in the city, they are victims of occupation involving hard labor, poverty, and low literacy rate coupled with ignorance.

A total of 2,163 construction workers were interviewed and examined. Among them, the majority (69.81%) are migrants. The majority of the migrants belonged to the age group 15 to 34 years; 37.4% of the total workers belongs to the age group 25 to 34 years. Among the 2,163 workers, 1,952 were tobacco users and 211 were nonusers. Among the users, 1,021 used smokeless form, 372 used smoked form, and 559 used both. Premalignant lesions/conditions were more commonly seen with tobacco habit, with leukoplakia (14.75%) being the most common followed by OSMF in 201 (9.3%), candidiasis in 123 (5.7%), ulceration in 131 (6.05%), abscess in 59 (2.73%), smokers

palate in 58 (2.68%), lichen planus in 21 (0.97%), and malignant tumor in 2 (0.1%).

The overall prevalence of tobacco use in our study was 90.25%, which was higher than other reported studies by earlier community-based studies of tobacco use from other parts of the country.^{9,10} Tobacco is the leading cause of mortality globally and in India.

Tobacco products are used mostly in chewed and smoked form. The common habit among the study group was khaini chewing (31.91%), especially among the younger age group of 15 to 24 years. This shows the penchant of younger population toward khaini chewing. Pan masala prevalence (28.59%) was preferred next to khaini chewing, and this was mostly practiced by middle-aged population (25–34 years); this was similar in comparison with the study conducted by Vikneshan et al.¹⁰

This study shows that 88.83% never tried to quit tobacco usage and 58.09% were not willing to quit tobacco. This is a clear indication of lack of tobacco cessation programs among the downtrodden workers.

Among the total study participants, 914 (42.27%) had oral mucosal lesions which is higher when compared with study conducted among interstate migrant workers (36.3%) and fishermen population (14.9%) in Kerala.^{11,12} This rate is less when compared with 44.1% reported by Reddy et al.¹³ Oral leukoplakia (14.75%) and OSMF (9.3%) were the prevalent oral mucosal lesions found in participants who had those habits, which is similar with the studies conducted by Prashant B Patil (8.2 and 7.1% respectively).¹⁴ Our study confirmed the fact that tobacco chewing is the strongest risk for precancerous lesions. This clearly states that as the number and chronicity of oral habits increase, the number and severity of oral lesions also increases. There was a statistically significant association between type of tobacco habits and tumor.

The high incidence of tobacco consumption and related oral mucosal lesions among migrants has serious

health indications. The extensive use of tobacco products will multiply the incidence of tobacco-related cancer in the state and can encumber the state's health system.¹⁵

The sale of smokeless tobacco has been prohibited in the state. The present study showed that in spite of the ban, the use of smokeless tobacco products was high among male migrants. The study also materializes that one-third of smokers started smoking recently within last 1 year while they had been using smokeless tobacco for many years. This behavioral change may have been due to the impact of ban on smokeless tobacco. It is noticed that migration increases the use of tobacco as the prevalence of use is higher than prevalence in their native state. This may be associated with various stress factors related to migration.

The strength of the study was that to the best of our knowledge, this was the first study done in the state to assess the burden of tobacco use and oral mucosal lesions among migrant workers in Kerala. However, as the workers are not registered in state labor registries, there was an absence of sampling frame for random sampling. The convenient sampling of the study participants may affect the generalization of the results of the study to whole migrant population.

To control the situation, health promotion activities directed toward tobacco and alcohol cessation should be actively carried out among the migrant laborers by the health staffs of primary health centers in their field area. Behavior changing communication materials for tobacco and alcohol cessation should be made available in their native languages. To control the use of smokeless tobacco products, strict enforcement of ban on sales of smokeless tobacco can also be done. For prevention, early detection, and control of oral cancers, the routine health camps organized by the health departments for migrants should also include screening for oral cancer.

CONCLUSION

Compared with the general population, tobacco abuse was higher in construction workers in which 69.81% were migrants. Tobacco abuse was commonly seen in the young population of age group 15 to 34 years. Prevention of tobacco use in its early stage leads to improvement of symptoms, so it is of high need that these workers have to be educated regarding ill effects of tobacco on their oral and general health. Therefore, intervention programs to discourage the use of tobacco risky habits should be a public health priority.

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