

Assessment of knowledge and awareness among North Indian populations about oral precancerous lesions (OPL): A cross-sectional survey study

ABSTRACT

Background: A precancerous lesion is a morphologically altered tissue in which oral cancer is more likely to occur than its apparently normal counterpart. They are quite common in the Indian population due to the habitual habit of chewing tobacco. The aim of this study was to evaluate the awareness of oral precancerous lesions by a questionnaire-based survey among the study subjects having been diagnosed with it.

Methods: In this descriptive study, a structured questionnaire having 11 survey questions has been used to record the response from study subjects who have been diagnosed and reported for treatment for oral premalignant lesions in the Department of Oral Medicine and Radiology. A total of 1013 study subjects were assessed for awareness about OPL and its consequences.

Results: 44.3% of the study population was addicted to smoking tobacco (cigarettes) while 57.9% of study subjects were addicted to non-smoking tobacco (Pan masala). The reason behind their addiction was reported to be stress (54.9%) and workload (25.3%). Most of the study subjects were diagnosed with oral sub-mucous fibrosis (53.4%). 78.6% of study subjects diagnosed with OPL were not aware of it and 94% were willing to quit the addiction.

Conclusion: The awareness about OPL among patients was found to be low. Although many wanted to quit their addiction to smoking and chewing tobacco but were unable to do so. So it is a need for time to develop a national policy on tobacco use and related diseases. This policy will definitely reduce the burden of oral premalignant lesions and oral cancer in Indian population.

Keywords: Awareness, oral premalignant lesions, oral sub-mucous fibrosis

INTRODUCTION

Oral cancer is a seriously growing health problem and it is the sixth most common cancer in the world. In high-risk countries such as Sri Lanka, India, Pakistan, and Bangladesh, oral cancer is one of the most common cancers in men and may contribute up to 25% of all new cases.^[1] The higher incidence of oral cancer and pre-cancers has been associated with the habit of betel quid and tobacco chewing in India. Among the 400 million individuals aged 15 years and above, 47% use tobacco in one form or the other in our country.^[2] Patient's delay has been cited as the main reason for late attendance. It seems probable that in both high-risk and the general population, neither the symptoms of oral cancer nor the main risk factors are well understood.^[3] Public awareness

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is very low with respect to the knowledge of risk factors and methods of early detection of oral cancer.^[4] About 400 years ago, Portuguese traders introduced tobacco in India, 47% of individuals consume tobacco in smoke form while 16% smokeless form.^[5] Smokeless tobacco is consumed in different ways in India like holding in the mouth under the lips, chewing, or rubbing over teeth and gums. It is also available in different forms, like Betel quid/pan masala, khaini, mishri, bajja, and Gudakhu, etc.^[6] India is considered one of the largest producers as well as consumers of tobacco,^[7-9] considering the etiological factors most commonly reported are chewing betel nut, pan masala, consuming alcohol, and chewing of tobacco.^[10,11]

Early identification of OPL is necessary as it involves a group of diseases of mucosa like leukoplakia, erythroplakia, oral sub-mucous fibrosis (OSMF),^[12,13] etc., and they have maximum potential to transform into malignancy.^[13] A study conducted by Phookhan *et al.* showed that 70 patients who reported their department were diagnosed with OPL and maximum showed symptoms of leukoplakia followed by Oral Lichen planus and OSMF.^[13,14] Diagnosis of OPL at an early stage is advantageous because if left untreated it may progress into cancer and dysplasia.^[13] It is also advantageous as the financial cost is reduced required for treatment, fewer side effects and deformities are reduced^[15] and patients can live a normal life. Early diagnosis can be done by individuals who are skilled with theoretical as well as practical knowledge in this field and are aware of different types of OPL and its adverse effects. Awareness among the practitioners is necessary so that they can aware patients of these conditions and help them to quit the habit. Many patients are not aware of OPL symptoms because they are sometimes painless and not sensitive to individuals who usually ignore the conditions^[16] and continue their habit of chewing tobacco or smoking without knowing the adverse effects.^[17] The aim of this study was to evaluate the knowledge and attitude level of patients regarding oral premalignant lesions and their willingness of quitting the habit after knowing its consequences and helping others to quit the habit.

METHODS

The present study has been conducted in the host institution and was approved by the institutional ethical committee having reference code 97th ECM II A/P9, 1099/Ethics/2019 dated 29/07/2019. Registration no.: ECR/262/Inst/UP/2013/RR-16.

Study population

The population consisted mainly of North Indians visited the hospital as patients who reported for treatment of

tobacco-related oral diseases. Those who agreed to fill out the questionnaire were consented.

Sample size and sample selection

The sample size calculated for this study was 1013, out of which 1002 participants responded. The sample size was calculated using the formula: $z^2 * p(1-p)/e^2/1 + (z^2 * p(1-p)/e^2 N)$

$N = 2025$, $z = 1.96$, $e = 0.0217$, $p = 0.5$, and the recommended sample size was 1013. The patients who had a habit of chewing tobacco, smoking habits, or any habit that involved the consumption of tobacco and betel nuts were included in the study, while patients with no such habits, pregnant women, and patients who already developed malignancy were excluded from the study.

Validation of questionnaire

A well-structured questionnaire having 11 oral premalignant lesions (OPL) related survey questions. The validation of the questionnaire was done using a content validation approach, as five experts who had knowledge of oral premalignant lesions were approached to verify and approve the 11 questions and their scale. After the validation, the questionnaire was provided to the study participants.

The oral examination was carried out at the OPD of Oral Medicine and Radiology department of KGMU, Lucknow. Subjects who willingly wanted to participate were randomly selected. A well-structured questionnaire was provided to them by the authors to fill out while waiting for the treatment. Consent was obtained from all the participants prior to filling the questionnaire and it was translated to the patient for better understanding. After collecting all the responses from the study subjects, it was analyzed statistically using SPSS 21.v software. Descriptive statistics were obtained and percentages were calculated.

RESULTS

The study population comprised 1013 participants, out of which 1002 participants responded to the questionnaire. Each table comprises participants responded to that particular question. The study subjects comprised 658 males and 356 females with an average age of 43.31 years. Most study subjects with oral precancerous lesions (OPL) were in 36–50 years of age group.

Tables 1 and 2 depicted that in the smoking category, study subjects diagnosed with OPL had a habit of smoking cigarettes and bidi (44.3% and 39.1%, respectively) while in the non-smoking category, 57.9% of study subjects

had the habit of pan masala chewing and 11.8% of study subjects had the habit of betel nut chewing with tobacco and betel quid. Table 3 reveals that the study subjects enrolled in this study were diagnosed with different types of oral premalignant lesions in 1013 patients, 995 patients

Table 1: Showing type of habit in the smoking category

Type of habit smoking	n	Percent
Cigarettes	102	44.3
Bidi	90	39.1
Hukka	8	3.5
Other	6	2.6
Cigarettes & Bidi	16	7.0
Bidi & Hukka	6	2.6
Bidi & Ganja	2	0.9
Total	230	100.0

Table 2: Showing type of habit in the non-smoking category

Type of habit non-smoking	n	Percent
Storing or chewing tobacco in the mouth	40	4.7
Betel nut chewing with tobacco	93	11.0
Betel quid	10	1.2
Pan masala	491	57.9
Other	16	1.9
Storing or chewing tobacco in the mouth & pan masala	4	0.5
Storing or chewing tobacco in the mouth & betel nut chewing with tobacco	24	2.8
Betel nut chewing with tobacco & betel quid	100	11.8
Betel nut chewing with tobacco & pan masala	6	0.7
Betel nut chewing with tobacco & other	4	0.5
Betel quid & pan masala	60	7.1
Total	848	100.0

Table 3: Showing types and characteristics of oral premalignant lesions (OPL) in the study population

	n	Percent
Type of lesion		
Oral sub-mucous fibrosis	531	53.4
Leukoplakia	188	18.9
Erythroplakia	6	0.6
Palatal keratosis	30	3.0
Malignancy	82	8.2
Oral sub-mucous fibrosis & leukoplakia	98	9.8
Oral sub-mucous fibrosis & erythroplakia	4	0.4
Oral sub-mucous fibrosis & palatal keratosis	2	0.2
Oral sub-mucous fibrosis & malignancy	24	2.4
Leukoplakia & leukoplakia	14	1.4
Leukoplakia & erythroplakia	16	1.6
Total	995	100.0
Characteristic of lesion		
Yes	95	9.7
No	163	16.7
Decreasing	4	0.4
Increasing	716	73.2
Total	978	100.0

responded to this question and it was found that 53.4% of patients suffered oral sub-mucous fibrosis, 18.9% with leukoplakia, 9.8% had both, and 8.2% had malignancy. The reasons behind the cause and addiction of study subjects to the habit of tobacco (smoking and non-smoking) is summarized in Table 4. Of the study subjects in both the smoking and non-smoking groups, 54.9% were addicted to these habits because of stress while 25.3% had workload in their professional life and 15.8% had habitual addiction and were unable to quit this addiction [Table 4]. Considering the characteristics of the lesions, i.e., shape, size and pain, 978 patients responded and 73.2% of patients showed a significant increase in the size of the lesion [Table 3] while 16.7% showed no characteristic changes in the lesion. 82.4% of study subjects with oral premalignant lesions had no associated pain, while 17.6% had pain [Table 5]. 96.9% of study subjects had no sensitivity in the lesion area [Table 5]. Awareness of study subjects regarding OPL is summarized in Table 6. In the study population (1002 study subjects), 78.6% were unaware of this condition and 77.8% of study subjects had OPL but were addicted to tobacco (smoking and non-smoking) because they were not aware [Table 7]. 64.4% of study subjects were unaware about its consequences and it can lead to malignancy [Table 8]. Out of 1002 study subjects who responded, 99.2% were willing to quit after knowing the consequences of lesions due to their habit of smoking and non-smoking tobacco [Table 9]. 99.2% of study subjects agreed to a professional consultation so that they can get complete information regarding OPL and its consequences [Table 10]. 99.2% of study subjects agreed to be aware of other individuals OPL having the same habit [Table 11].

DISCUSSION

WHO has always been acknowledged for maintaining oral health. There have been many awareness programs that have been organized by the public and private organizations to aware individuals of oral health, its management, and also the consequences one has to face if failed to maintain it. But despite these efforts made by the government and private sector still, there are people who are unaware of the consequences of not maintaining oral health and continue to chew tobacco or smoke it in different forms. Our study focuses on the awareness of patients who were diagnosed with oral precancerous lesions and were reported to the Department of Oral Medicine and Radiology, KGMU, Lucknow, for further treatment. A questionnaire was prepared and given to patients along with the consent and they responded accordingly.^[18] In the current study, the average age of patients having OPLs was 43.31. Out of 230 patients

who responded in the category of smoking habits, 44.3% responded on cigarettes while out of 848 patients who responded in the non-smoking category, 57.9% were inclined to pan masala. These two categories are directly or indirectly related to tobacco.

Table 4: Showing the cause and addiction of study subjects toward tobacco

Reason of habit	n	Percent
Stress	552	54.9
Workload	255	25.3
Personal issues	40	4.0
Any other, habitual addiction	159	15.8
Total	1006	100.0

Table 5: Showing associated pain and sensitivity with oral premalignant lesions (OPL)

	n	Percent
Associated pain		
Yes	176	17.6
No	826	82.4
Total	1002	100.0
Sensitivity		
Yes	31	3.1
No	971	96.9
Total	1002	100.0

Table 6: Showing awareness, addiction, of study subjects regarding oral premalignant lesions (OPL)

Awareness	n	Percent
Yes	214	21.4
No	788	78.6
Total	1002	100.0

Table 7: Showing study subjects who were aware of OPL and addicted to tobacco

Condition with habit	n	Percent
Yes	222	22.2
No	780	77.8
Total	1002	100.0

Table 8: Showing study subjects who were aware of the consequences of the habit

condition and consequences of habit	n	Percent
Yes	354	35.6
No	640	64.4
Total	994	100.0

Table 9: Showing study subjects willing to quit the habit

Willing to quit	n	Percent
Yes	942	94.0
No	60	6.0
Total	1002	100.0

It is proven that tobacco contains more than 60 well-established carcinogens. Each puff of cigarette smoke contains thousands of compounds along with these carcinogens and when they come in contact with the oral cavity, they increase the inflammatory process and continuous use of tobacco in any form may lead to pathologic changes in the oral cavity.^[19,20] In our study, more males (64.9%) were diagnosed with OPL compared to females (35.1%), similar to the study^[19] where males were more infected with OPL compared to females.

OPL and cancers can be treated if diagnosed at early stages, i.e., if the infected area is small. In developing countries, more than 50% of oral cancers are detected only after they have become malignant and are more painful, and disfiguring, and the treatment necessary is radical and expensive with a low survival rate.^[21] The present survey revealed that 531 patients were diagnosed with oral sub-mucous fibrosis which is a precancerous condition in which inflammation occurs in the sub-mucous tissue region of the oral cavity resulting in trismus and rigidity causing difficulty in opening the mouth.^[22] A total of 188 patients were diagnosed with Leukoplakia which is also a precancerous condition in which there is a formation of white patches in the oral cavity that is not removed after cleaning. About 3% to 17.5% of people with leukoplakia have the potential to convert into squamous cell carcinoma which is a type of skin cancer.^[23] A study conducted by Lawless *et al.* in 2015^[24] reported that stress is the main factor for having addiction to cigarette smoking, which is similar to our study results which showed 54.9% of patients were addicted to smoking habits because of stress in their life. Although in our study a maximum number of patients responded that the lesions were not painful but contradicting to our study Yardimci *et al.*^[13] reported that OPL can be painful after consuming hot and spicy foods. The main drawback of this study was the awareness of patients regarding the consequences of the lesions and adverse effects of consuming smoking and non-smoking products. 78.6% of patients were unaware of this condition which is a very serious topic of concern. Similarly, a survey conducted in 2016 by Ahire^[18] reported that the patients reported to their department their knowledge and awareness regarding oral premalignant lesions were found to be low. Muthanandam *et al.*,^[25] 2021 conducted a questionnaire-based study on the Narikuravar population of Pondicherry to assess their knowledge and awareness about pre-cancer and cancer and found that almost 100% populations were unaware of its signs and symptoms and the consequences of precancerous lesions. Similar results were observed in a study conducted by Kadashetti *et al.*,^[26] where the patients who visited to the hospital and participated in the survey were unaware of oral premalignant lesions and signs and symptoms.

Table 10: Study subjects who agreed to professional consultation

Professional consultation	n	Percent
Yes	994	99.2
No	8	0.8
Total	1002	100.0

Table 11: Study subjects who willingly help others to quit the habit

Prevention of habit	n	Percent
Yes	988	99.2
No	8	0.8
Total	996	100.0

The positive point that came out after conducting this survey was that 94% of patients were willing to quit after knowing the consequences of OPLs and their potential to convert into oral cancer. 99.2% were ready to help others to quit the habit and aware others of its consequences.

CONCLUSION

The awareness about OPL among the Indian population is quite low. There are many demographical and habit-related factors involved in the higher incidence and prevalence of Oral premalignant lesions in the Indian Subcontinent. So, it needs time to develop a national policy on awareness of tobacco use and its related diseases. This policy will definitely reduce the burden of oral premalignant lesions and oral cancer in the India population. This awareness in the Indian population can be achieved through online/offline programs, advertisements, television, newspapers, etc., too.

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Author's Contribution

All authors read and approved the final version of the manuscript

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Conflicts of interest

There are no conflicts of interest.

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