



# Awareness and Knowledge of Oral Cancer and Potentially Malignant Oral Disorders among Patients Visiting a South Indian Dental College

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## ABSTRACT

**Introduction:** Globally, cancer is considered a serious public health problem with an increasing number of cancer patients reported each year hence public health awareness/knowledge on oropharyngeal cancers (OPCs), potentially malignant oral disorders (PMODs) and their risk factors is crucial for prevention and early detection of OPCs and PMODs.

**Materials and methods:** A cross-sectional survey with an interviewer-administered questionnaire was conducted. The questionnaire consists of relevant questions to ascertain sociodemographic information, awareness, and knowledge of OPC, PMODs and their associated risk factors, and participants exposure to risk factors. Subjects above the age of 20 years (n = 100) were randomly selected, and the questionnaires were administered by the interviewer while they were waiting for treatment. The survey was carried out at the Maratha Mandal Dental College, Belgaum.

**Results:** Results showed alarming lack of awareness for potentially malignant oral disorders based on the evaluation of the questionnaires for sociodemographic data second, awareness of oropharyngeal cancer and potentially malignant disorders, habit status, knowledge regarding risk factors associated with oropharyngeal cancer and clinical presentation of oral cancer.

**Conclusion:** Awareness about oropharyngeal cancer is relatively significant; however, for potentially malignant oral disorders, awareness is low in our study and the subjects were unaware of the risk factors and clinical presentation. So a high level of public awareness and knowledge of PMODs should be brought to people via mass media as it is a very effective source of information. Education materials such as leaflets and posters depicting clinical features of oral cancer and potentially malignant oral disorders should be given to the patient waiting for his/her treatment. Early detection of oral cancer is the most effective means to improve survival and to reduce morbidity, disfigurement, treatment duration, and associated costs.

**Keywords:** Cancer, Oral cancer, Oropharyngeal cancer, Potentially malignant oral disorders, Questionnaire, Red patch, White patch.

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## INTRODUCTION

Cancer is Latinized from the Greek word 'Karkinos' meaning crab, denoting how carcinoma extends its claws like a crab into the adjacent tissues.<sup>1</sup> Oral cancer is the eleventh most common cancer globally<sup>2</sup> and it is considered a serious public health problem with an increasing number of cancer patients reported each year.<sup>3</sup> Even though rapid advances have been made in the field of medicine and surgery, cancer is a leading cause of human mortality.<sup>1</sup> There is a wide geographical variation in the incidence of oral cancer, with approximately two-thirds of patients in the developing countries of Southeast Asia, Eastern Europe, and Latin America.<sup>3</sup> In the Indian subcontinent, the prevalence of cancer is the highest among all cancers in men even though it is only the sixth most common cancer worldwide.<sup>1</sup> Most of the oral cancer cases are still diagnosed only in the advanced stages. It is estimated that more than one million new cases are being detected annually in the Indian subcontinent. It has been well established by researchers that almost all oral cancer cases are preceded by visible clinical changes in the oral mucosa usually in the form of the white or red patch. Lack of public awareness about the signs, symptoms and risk factors, along with the absence of knowledge for early detection by healthcare providers are believed to be responsible for the delay in identifying the potentially malignant oral disorders.<sup>1</sup> Since most of oral cancer arises from premalignant lesions and is usually asymptomatic, routine dental screening is essential for early diagnosis.

Therefore, the aim of this study is to assess the awareness and knowledge of oral cancer and potentially malignant oral disorders, their clinical presentation, and associated risk factors among patients visiting a dental college.

## MATERIALS AND METHODS

In order to assess the awareness of OPC, PMODs, and their associated risk factors, an interviewer-administered questionnaire was designed, later modified for improved clarity and comprehension based on feedback from five subjects. The questionnaire consisted of five parts. In the first part—Sociodemographic data, second part—awareness of oropharyngeal cancer and potentially malignant disorders (02 questions), third part—habit status (04 questions), fourth part—knowledge regarding risk factors associated with oropharyngeal cancer (09 questions), and in the fifth part—clinical presentation of oral cancer (04 questions) were evaluated. The questionnaire was translated to the patient's vernacular language by the interviewer to assure better understanding. The study was carried out at the Maratha Mandal's Nathajirao G Halgekar Institute of Dental Sciences and Research Centre, Belgaum. One hundred ( $n = 100$ ) subjects above the age of 18 years were randomly selected among patient's reporting to the Department of Oral Medicine and Radiology. Patients not willing to participate and with cognitive impairment were excluded from the study. Consent was obtained from all participants prior to the administration of the questionnaire. Ethical clearance was obtained from the Institutional Review Board, Maratha Mandal's Nathajirao G Halgekar Institute of Dental Sciences and Research Center, Belgaum.

## RESULTS

One hundred questionnaires were analyzed. The study consisted of 43 females and 57 males with a median age of 40–49 years. Sociodemographic data are summarized in Table 1 in terms of the level of education and experience at the dental school/clinic. In terms of education, almost all the subjects (98%) had some form of education, of these

**Table 1:** Sociodemographic data of subjects ( $n = 100$ )

		Number
Gender	Male	57
	Female	43
Level of education	No school education	30
	Primary school	54
	Secondary school	01
	Diploma/Training	13
	Bachelors degree	02
Experience at the dental school/clinic	Yes	42
	No	58

**Table 2:** Awareness of oropharyngeal cancer and potentially malignant oral disorders

	Aware	Not aware
OPC	71	29
PMODs	02	98

OPC: Oropharyngeal cancer; PMODs: Potentially malignant oral disorders

only two subjects had no education, and over one-half of the subjects (54%) had tertiary education. More than half of the subjects (71%) were aware of oropharyngeal cancer and 98% were not aware of potentially malignant oral disorders (Table 2).

The study found that among 71% respondents who were aware of OPCs, mass media (88.7%) was the leading source of information for the awareness of oropharyngeal cancer and the next popular source were friends. The least common source of information was noticed to be registered nurses (RN) and midwives (Table 3). Out of 100 subjects, 27 were smokers, 19 had tobacco chewing habit, 31 had betel nut chewing habit (6 females and 25 males), and 20 subjects consume alcohol (Table 4).

In our study, out of 100 subjects, 56 agreed that tobacco smoking is associated with oropharyngeal cancer and 44 disagreed. Fifty one agreed that tobacco chewing is associated with oropharyngeal cancer and 49 disagreed. Almost all the subjects were not aware of the risk factors tobacco chewing with areca nut, areca nut chewing, drinking alcohol, actinic radiation, elderly people, and viruses are associated with oropharyngeal cancer (Table 5). In our study, all the subjects had no knowledge about the clinical presentation of oropharyngeal cancer (Table 6).

## DISCUSSION

In the Indian subcontinent, the prevalence of oral cancer is the highest among all cancers in men even though it is only the sixth most common cancer worldwide. It is estimated that more than one million new cases are being detected annually in the Indian subcontinent. It has been well established by researchers that virtually all oral cancer is preceded by visible clinical changes in the oral mucosa usually in the form of the white or red patch.<sup>1</sup>

Oral cancers are still diagnosed in advanced stages only. Since most of oral cancer arises from premalignant lesions and is usually asymptomatic, routine dental

**Table 3:** Sources of information for Oropharyngeal cancer (71)

Sources	OPC (n)	%
Family	06	8.4
Friends	17	23.9
Medical practitioner	03	4.2
Dentist	06	8.4
RN or midwife	02	2.8
Mass media	63	88.7

**Table 4:** Habit status among subjects

Habit status	Number
Tobacco smoking	27
Tobacco chewing	19
Betel nut chewing	31 (6 F, 25 M)
Alcohol consumption	20

**Table 5:** Knowledge response for oropharyngeal cancer based on risk factors

<i>Risk factors</i>		<i>Number</i>
Tobacco smoking is associated with OPC	Yes	56
	No	00
	Do not know	44
Tobacco chewing is associated with OPC	Yes	51
	No	00
	Do not know	49
Tobacco chewing with areca nut is associated with OPC	Yes	01
	No	00
	Do not know	99
Chewing areca nut is associated with OPC	Yes	00
	No	00
	Do not know	100
Heavy drinking of alcohol is associated with OPC	Yes	08
	No	00
	Do not know	92
Actinic radiation is associated with OPC	Yes	00
	No	00
	Do not know	100
Consumption of fruits and vegetables are protective against OPC	Yes	17
	No	11
	Do not know	72
Elderly people are more likely to get OPC	Yes	00
	No	20
	Do not know	80
Virus is associated with OPC	Yes	03
	No	00
	Do not know	97

**Table 6:** Knowledge response of oropharyngeal cancer based on clinical presentation

<i>Clinical presentation</i>		<i>Number</i>
Oral cancer may present as a nonhealing ulcer	Yes	00
	No	00
	Do not know	100
Oral cancer may present as a red patch	Yes	01
	No	00
	Do not Know	99
Oral cancer may present as a white patch	Yes	02
	No	00
	Do not know	98
Oral cancer may present as a lump in the neck	Yes	01
	No	00
	Do not know	99

screening is essential for early diagnosis. Lack of public awareness about the signs, symptoms and risk factors, along with the absence of knowledge for early detection by healthcare providers are believed to be responsible for the diagnosis delay in identifying the potentially malignant oral disorders. Early detection of oral cancer is the most effective means to improve survival and to reduce morbidity, disfigurement, treatment duration, and associated costs. Delay in diagnosis has been considered in the recent past as a significant factor, which compromises the survival and worsens the treatment outcome. The diagnostic delay has been interpreted as the elapsed time from the first symptom or sign until the definitive diagnosis is established. This includes (i) patient delay: the period

between the patient first noticing a sign or symptom and their first consultation with a healthcare professional, (ii) professional delay: the period from the patient's first consultation with the healthcare provider and the time at which the definitive diagnosis is established.<sup>4</sup>

Our study showed an alarming lack of awareness for potentially malignant oral diseases and more than half of the subjects were aware of oropharyngeal cancer, which is similar to study by Formosa et al. in Far North Queensland, Australia.<sup>3</sup> Warnakulasuriya et al., reported an alarming lack of public awareness on oral cancer in the UK.<sup>5</sup> In our study, only 2% were aware of potentially malignant oral disorders as they have visited dental clinics along with their friends (Table 2).

Gender influences the awareness of oral cancer in our study whereas in Formosa et al. Study, it did not.<sup>3</sup> Greatest awareness was found among the age group of over 40 years, and awareness of oral cancer increases with the increasing level of education (Table 7).

In our study, 29 subjects had quit the habits and reasons asked for quitting were bad breath, fear of having lung cancer, and teeth discoloration.

The most important source of information for the awareness of oropharyngeal cancer in our study was mass media (television) and friends, but the other sources like a midwife, dentist, medical practitioner, and the family do not have much significant role in creating awareness of cancer (Table 3).

**Table 7:** Awareness of oropharyngeal cancer with different demographic parameters

Demographic parameters		Aware	Not aware
Gender	Male	33	24(41%)
	Female	38	05(11%)
Age	20-29	24	04 (14%)
	30-39	21	06 (22%)
	40-49	17	14 (45%)
	50-59	09	03 (25%)
	60>	00	02 (00%)
Level of education	No education - 2	00	02 (100%)
	Primary school- 30	28	02 (7%)
	Secondary school- 54	31	23 (42%)
	Diploma- 1	00	01 (100%)
	Bachelors degree - 13	12	01 (7.6%)
Experience as a patient at the dental school/clinic	Yes		12 (28%)
	No		17 (29%)

**Table 8:** Habit status and awareness of oropharyngeal cancer

Habit status			
Tobacco smoking	Current	21	05(19%)
	Ex-smoker	06	05(45%)
	Never smoked	30	19(38%)
Tobacco chewing	Current	22	06 (21%)
	Ex-chewer	03	03 (05%)
	Never chewed	32	20 (38%)
Alcohol consumption	Consume	14	05 (26%)
	Do not consume	39	06 (04%)
	Used to consume	04	02 (3.3%)

Most of the subjects were not aware of the risk factors like tobacco chewing with areca nut, areca nut chewing, alcohol, and elderly people will have cancer (Table 5) and clinical presentation of oropharyngeal cancer (Table 6) which is in concordance with the study by Amarasinghe et al. in rural populations in Srilanka (Table 8).<sup>6</sup>

## Conclusion

Awareness of the study population about oropharyngeal cancer is relatively significant. However, the awareness about potentially malignant oral disorders is low according to our study and the subjects were unaware of the risk factors and clinical presentation. Therefore, a high level of public awareness and knowledge of PMODs should be brought to people via mass media as it is a very effective source of information, especially among our subjects.

Education materials such as leaflets and posters depicting clinical features of oral cancer and potentially malignant oral disorders should be given to the patient waiting for his/her treatment. Early detection of oral cancer is the most effective means to improve survival and to reduce morbidity, disfigurement, treatment duration, and associated costs.

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