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Original Article

Clinical Presentation, Tumour Characteristics, Sociodemographic, And Lifestyle-Related Factors of Oral Cancer In Patients Visiting Abbasi Shaheed Hospital, Karachi Pakistan

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ABSTRACT

Objective: To determine the sociodemographic and lifestyle-related factors of oral cancer, clinical presentation, and tumour characteristics among patients visiting Abbasi Shaheed Hospital in Karachi, Pakistan.

Study Design: Cross-sectional study

Place and duration of study: Department of Oral and Maxillofacial Surgery, Abbasi Shaheed Hospital, Karachi Pakistan, from Oct 2020 to Nov 2021.

Methodology: One hundred and thirty-eight cases of diagnosed oral cancer were enrolled in the study and information was collected regarding sociodemographic and lifestyle-related factors. Clinical presentation at the time of oral cancer diagnosis was also recorded.

Results: The mean age of the patients was 48.59+14.28 years. Out of 138 cases, most were males 108(78.3%), most belonging to a low socioeconomic status 122(88.4%). 78(56.5%) of patients had well-differentiated squamous cell carcinoma, followed by moderately differentiated 59(42.8%), and only 1(0.7%) had poorly differentiated oral cancer. The study showed that oral cancer was highest among people from low socioeconomic status, with well-differentiated squamous cell carcinoma being the most common type. Male gender, the use of chewable tobacco, and areca nuts were also reported as risk factors for oral cancer.

Conclusion: The study showed that oral cancer was highest among males and people belonging to low SES. Most of the cases had well-differentiated carcinoma and had a history of current and past use of tobacco, alcohol, and areca nut. Squamous cell carcinoma was the most common oral cancer.We need mass campaigns to raise awareness about the benefits of healthy lifestyle habits, oral cancer risk factors, and seeking help without delay among people, especially people belonging to low SES.

Keywords: Oral cancer, mouth, Smoking, Squamous cell carcinoma, Tobacco

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INTRODUCTION

Oral cancer is a severe disease of the oral cavity that is responsible for a high rate of morbidity and mortality throughout the world.[1] Squamous cell carcinoma is the most common cancer of the oral cavity that begins in squamous cells of the mucosal epithelium.[2] Every year, 10 million new cancer cases of oral cancer are reported worldwide, with 4.7 million in developed countries and 5.5 million in less developed countries. They are associated with more than 6 million cancer deaths reported.[3] Globally, there has been an increase in the incidence of squamous cell carcinomas of the tongue.4 In a recent study, the highest ASIR of 27.03/100,000 has been reported in Pakistan.[5,6] Karachi is the region most affected by oral cancer. In the 2019 PAEC report, oral cancer has been reported as the number one cancer among males and third most common among females.[7] There has been a constantly increasing trend of oral cancer in Pakistan, especially among younger patients. This increase may be due to multiple but avoidable risk factors and intervention strategies to control it are needed on an urgent basis.

Approximately 90% of cases are associated with tobacco use, which can be prevented through primary prevention strategies.[8] The most important known "lifestyle" factors associated with oral cancer are smoking and alcohol consumption, which is more common among young adults < 45 years of age.[9] In Pakistan, a study reported avoidable risk factors like chewing habits, smoking habits, and alcohol use associated with oral cancer.[10]

It is important to assess the current situation, the sociodemographic and clinical factors associated with oral cancer, and the tumour characteristics of oral cancer. It will help our policymakers focus on this important public health problem and formulate better

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health policies for patient education and awareness for early detection and prevention of oral cancer. The study aimed to determine the distribution of sociodemographic, clinical, and tumour characteristics of oral cancer and lifestyle risk factors among patients visiting Abbasi Shaheed Hospital in Karachi, Pakistan.

METHODOLOGY

The cross-sectional study was conducted at the Department of Oral and Maxillofacial Surgery at Abbasi Shaheed Hospital Karachi, Pakistan, from October 2020 to November 2021 after Ethical Review Board of Karachi Medical and Dental College granted ethical approval for the study (Ref no. 039/19). The sample size was calculated using the WHO sample size calculator, taking a 50% prevalence rate of risk factors for oral cancer was used as the exact prevalence of risk factors in unknown.[11]

Inclusion Criteria: Patients of all age groups, irrespective of gender, with clinical findings suggestive of oral cancer, patients with histopathologically proven cases of oral cancer, either admitted or visiting OPD, were included.

Exclusion Criteria: Patients with a terminal disease and those with recurrent or residual disease after surgical treatment or chemoradiotherapy were excluded.

Patients fulfilling the inclusion criteria were asked for informed consent, and the objective of the study and their rights to confidentiality were explained to them. One-on-one interviews were conducted, followed by a clinical examination. The principal investigator developed a pretested structured questionnaire, and in-person interviews were conducted to collect information about age, gender, education, socioeconomic status, history of tobacco use, type of tobacco use, duration of tobacco use, and use of any other addiction, including a family history of any cancer. Details about types, grading, and other characteristics of oral cancer were extracted from the medical files.

Data was analyzed using the Statistical Package for the Social Sciences (SPSS) version 26.0. The mean and standard deviation (SD) were reported for quantitative variables. Frequencies and percentages were computed for categorical variables. The chi-square test was used for inferential statistics, with a p-value of 0.05 considered significant.

RESULTS

Among the enrolled 138 patients, the mean age was 48.59+14.28. Table-I shows that most patients were males 108(78.3), and belonged to low socioeconomic status (SES), i.e., 122(88.4%).

Table-I Distribution of Socio Demographic Factors, Medical History, and Lifestyle-Related Factors associated with Oral Cancer (n=138)

Variables	Categories	n (%)
Age (years) Mean + SD		48.9+14.2
Gender	Male	108(78.3)
	Female	30 (21.7)
Socioeconomic status	Low class	122 (88.4)
	Middle class	16 (11.6)
Karachi Region	Central	85 (61.5)
	South	25 (18.1)
	East	9 (6.5)
	West	19 (13.7)
Recurrence of oral cancer	Yes	4 (2.9)
	No	134 (97.1)
Family history of oral cancer	Yes	71 (51.4)
	No	67 (48.6)
Current use of tobacco	Gutka	56 (40.6)
	Niswar	82 (59.4)
History of tobacco use	Gutka	77 (55.8)
	Niswar	61 (44.2)
Current use of alcohol	Yes	9 (6.5)
	No	129 (93.5)
History of alcohol use	Yes	2 (1.4)
	No	136 (98.6)
Current use of areca nut	Yes	76 (55.1)
	No	62 (44.9)
Past use of areca nut	Yes	117 (84.8)
	No	21 (15.2)
Duration of tobacco use	< 1 year	15 (10.9)
	> 1 year	123 (89.1)
Duration of alcohol use	< 1 year	8 (5.8)
	> 1 year	130 (94.2)
Presence of medical disease	Yes	22 (15.9)
	No	116 (84.1)
Any early sign of oral cancer	Yes	20 (14.5)
	No	118 (85.5)

In our study, most patients came from Nazimabad, in Karachi's central region. It could be because of Abbasi Shaheed Hospital location in Karachi's central business district. Only 4(2.9%) patients were previously treated for oral cancer with recurrence, 71(51.4%) patients had family members who were previously treated for OSCC, and only 20(14.5%) had early signs of oral cancer. It also presents data on the medical history of patients, oral cancer risk factors, patient habits, duration of consumption of tobacco and areca in the previous years, average use per day, and clinical signs and symptoms regarding oral cancer. Table-II demonstrates the

association of socioeconomic status with age, gender and different variables.

Table-II: The association of socioeconomic status with age, gender and tumor characteristics of oral cancer (n=138)

Variables	Lower Socioeconomic Status	Middle Socioeconomic Status	*p* value
	n (%)	n (%)	
Age (years)			0.965*
<35	21(17.4%)	3(18.8%)	
35-45	34(28.1%)	4(25.0%)	
>45	66(54.5%)	9(56.3%)	
Gender			0.025*
Male	92(75.4%)	16(100.0%)	
Female	30(24.6%)	0(0.0%)	
Type of oral cancer			0.819*
OSCC	116(95.1%)	15(93.8%)	
Other types	6(4.9%)	1(6.3%)	
Histological grading			0.981
well differentiated	69(56.6%)	9(56.3%)	
Poorly, Moderately differentiated	53(43.4%)	7(43.8%)	
Clinical finding			0.149*
White patch	40(32.8%)	9(56.3%)	
Red patch	23(18.9%)	4(25.0%)	
OSF	28(23.0%)	1(6.3%)	
Others	31(25.4%)	2(12.5%)	
Early cancer			0.607*
Yes	17 (13.9%)	3 (18.8%)	
No	105 (86.1%)	13 (81.3%)	

**Fisher exact test*

Table-III shows that the cross-tabulation between histological grading and risk factors was calculated, while Table -IV shows a strong association of gutka use with the male gender. There was no association of gutka use with SES or any tumour characteristics.

DISCUSSION

This study reported the distribution of the sociodemographic factors, clinical and tumour characteristics of oral cancer, and lifestyle-related risk factors among patients visiting a major tertiary care hospital in Karachi, Pakistan. The mean age of the patients with oral cancer in years was 48.59+14.28, which is a much younger age but inconsistent with previous studies.[12,13] In the current study, males and females with oral cancer ranged in age from 14-90 years old. In comparison to a study from the Karachi Cancer Registry 2000, the current study reported an increased incidence of oral cancer among younger people compared to 30% of cases occurring in patients of 40 years of age.[14] Another study reported an alarming increasing incidence of OSSC among younger females.[15] Males had a higher frequency of oral cancer (78.3%) in our study, which is similar to a study from the Karachi Cancer Registry, where males had a similarly high incidence of oral cancer in the Pakistani population.[16] Similarly, a study published in 2020 by Dow University Health Sciences found that males had a higher rate of oral cavity disease than females.[17] In the current study, most cases belonged to poor socioeconomic status. Many factors influence socioeconomic status, including income, housing, educational attainment, and family lifestyle structure. It confirms the study findings of the association of poor SES with oral cancer reported in Iran.[18] A study

Table-III: Association of Histological Grading of Oral Cancers with Sociodemographic and Lifestyle Related Factors (n=138)

Variables	Well-Differentiated Oral Cancer (n=78)	Moderately & Poorly Differentiatedoral cancer (n=60)	**p*-value
Socioeconomic Status			
Low	69 (88.5 %)	52 (42.6%)	0.934
Middle	9 (11.5 %)	7 (43.8%)	
Current use of Chewable Tobacco			
Gutka	34 (43.6%)	21 (37.6%)	0.306
Niswar	44 (56.4%)	38 (64.4%)	
Past use of Chewable Tobacco			
Gutka	46 (59.0%)	31 (40%)	0.400
Niswar	32 (41.0%)	28 (47.5)	
Currently use of Alcohol			
Yes	4 (5.1%)	5 (8.5%)	0.709
No	74 (94.9%)	54 (91.5%)	
Alcohol use in the past			
Yes	2 (2.6%)	0 (.0%)	0.458
No	76 (97.4%)	59 (100%)	
Current use of Areca nut			
Yes	50 (64.1%)	25 (42.4%)	0.011
No	28 (35.9%)	34 (57.6%)	
Past use of Areca nut			
Yes	68 (87.2%)	48 (81.4)	0.587
No	10 (12.8%)	11 (18.6)	
Duration of Tobacco use			
Less than one year	9 (11.5%)	6 (10.2%)	0.910
More than one year	69 (88.5%)	53 (89.8%)	
Quantity of Tobacco			
Less than 5 packets / day	4 (5.1%)	2 (3.4%)	0.865
More than 5 packets / day	74 (94.9%)	57 (96.6%)	

**Exact test & chi square*

Table-IV: Distribution of factors associated with the type of Chewable Tobacco use among Oral Cancer Patients (n=138)

Variables	Gutka	Niswar	*p* value
	n (%)	n (%)	
Age			0.287
<35	10 (18.2%)	14 (17.1%)	
35-45	19 (34.5%)	19 (23.2%)	
>45	26(47.3%)	49(59.8%)	
Gender			0.009
Male	50(89.3%)	58(70.7%)	
Female	6(10.7%)	24(29.3%)	
SES			0.784
Low	49(87.5%)	73(89.0%)	
Middle	7(12.5%)	9(11.0%)	
Type			.507*
OSCC	54(96.4%)	77(93.9%)	
Others	2(3.6%)	5(6.1%)	
Histological grading			0.412
Well differentiated	34(60.7%)	44(53.7%)	
Poorly, moderately differentiated	22(39.3%)	38(46.3%)	
Clinical finding			0.497
White patch	18(32.1%)	31(37.8%)	
Red patch	11(19.6%)	16(19.5%)	
OSF	10(17.9%)	19(23.2%)	
Others	17(30.4%)	16(19.5%)	
Early sign of cancer			0.663
Yes	9(16.1%)	11(13.4%)	
No	47(83.9%)	71(86.6%)	

**Fisher exact test*
ASH Abbasi Shaheed Hospital
OSCC Oral Squamous cell carcinoma
SES Socioeconomic status

from the British Columbia cancer registry reported that areas with deprived neighbourhoods had a high rate of oral cancer mortality due to delays in diagnosis.[19] The current study confirms the previous studies reporting the association of the use of tobacco, areca nuts, and niswar with oral cancer.[11-20] A study conducted in India reported that tobacco chewing is the most common reason (41.5%) for developing oral cancer among individuals followed by smoking and alcohol use (28.1%).[21]

Consistent with the previous literature.[22] the most common tumour type was squamous cell carcinoma OSSC (94.9%), and the site for OSCC was the buccal mucosa, followed by the lips and palate. Twenty-two histopathological findings revealed well-differentiated squamous cell carcinoma (56.5%) as the most common type.

Many studies have been conducted to assess the relationship of various SES with oral cancer and show a strong association of poor SES with oral cancer.[18] In the current study, a white patch was the most common clinical presentation. Although diagnosing an initially appearing white lesion is quite challenging, it varies from benign reactive lesions to severe dysplastic lesions with different etiologies and prognoses.

The use of oral cancer-causing addiction is common among Pakistani young adults. However, early diagnosis of oral mucosal lesions facilitates the early detection of cancer, and that is a key step for treatment and reduces mortality. Oral cancer is of great public health significance, and public awareness campaigns must be launched to increase awareness about the risk factors of oral cancer and to educate people, especially about the dangers of tobacco and betelnut. The public must also be educated to receive early diagnosis and timely treatment without delays, improving the disease's prognosis.

LIMITATIONS OF STUDY

The main limitation of this study was its small sample size. Additional studies with larger sample sizes are highly recommended to assess the reasons for using oral cancer-causing factors and prevention strategies for oral cancer control in Pakistan.

CONCLUSION

The study showed that oral cancer was highest among males and people belonging to low SES. Most of the cases had well-differentiated carcinoma and had a history of current and past use of tobacco, alcohol, and areca nut. Squamous cell carcinoma was the most common oral cancer 131(94.9%). We need mass campaigns to raise awareness about the benefits of healthy lifestyle habits, oral cancer risk factors, and seeking help without delay among people, especially people belonging to low SES. Cost-effective oral cancer control programs focused on the young population would be beneficial for Pakistan. General practitioners, health visitors, volunteer organizations, and medical students can also play an important role in the early detection of oral cancer and timely referral for successful treatment.

Conflict of Interest: None.

Authors Contribution

Following authors have made substantial contributions to the manuscript as under:

SU & SA: Conception, study design, drafting the manuscript, approval of the final version to be published.

SI & MK: Data acquisition, data analysis, data interpretation, critical review, approval of the final version to be published.

BUAS & SK: Data acquisition, drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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