Profile of Smoking Habits in Oral Cancer Patients

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ABSTRACT

Objective: The objective of this study was to determine the smoking profile in Oral Cancer patients.
Study Design: observational case control study
Place and Duration of Study: This study was conducted at the in the Department of Oral Surgery, Dow University of Health Sciences, Karachi for 6 months from 10th January 2019 to 10th July 2019.
Materials and Methods: Total 111 oral cancer patients and 132 controls who meet the inclusion criteria were enrolled from outpatient department, and variables were noted in performa with approved consent of patient regarding smoking and other habits that fulfill inclusion criteria.
Results: Males were more likely to have oral cancer (91%) and were more likely to be illiterate (50%). Mostly use cigarettes (63%) and other smoking tobacco, and have been doing so for 1-20 years (40%). Smoking was the major risk factor for oral cancer.
Conclusion: Smoking is a strong risk factor for Oral cancer in the Pakistani population. Cigarette smoking presents a higher risk than other type of tobacco smoking.
Key Words: Oral Cancer carcinoma, Smoking, Tobacco

INTRODUCTION

Oral cancer is one of the main causes of mortality globally, ranking sixth among all malignancies and accounting for 30% of head and neck cancers [1]. According to the WHO, the incidence of oral SCC will rise in the future decade [2]. One of the risk factors for mouth cancer is smoking [3]. Different types of cigarettes have nearly identical cancer-causing effects. Ancient fossils have exhibited symptoms of head and neck cancer, particularly nasopharyngeal cancer, which might be caused by inhaling smoke created by burning wood within dwellings [4]. There are several cancer causes, which may be classified as extrinsic, intrinsic, economical, and so on.

Smoking and alcohol consumption have been identified as a known risk factor for the development of oral and pharyngeal cancer[5].

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The death rate is expected to climb in the next years due to the continuous rise in mortality from oral cancer[6]. The synergistic impact of both smoking and drinking has a negative influence on oral cavity cancer, and more persons who consume tobacco and alcohol are at risk of developing oral cancer [7]. In terms of the male to female ratio in oral cancer, males are more prone to the disease due to increased intake of tobacco and alcohol, while females' toll is rising due to increased smoking and drinking [8].

Cigarette smoking has been linked to an increased risk of oral and pharyngeal cancer. Tobacco use is directly or indirectly responsible for more than 80% of malignancies in men[9]. Cigarette smoking increases the permeability of the oral mucosa to carcinogens, raising the risk of oral and pharyngeal cancer. It has been established that if a person quits smoking, the probability of developing mouth cancer or other associated leasion is much reduced [10]. According to many studies, if a person quits smoking before ten years, the chance of developing oral carcinegic leasions drops by thirty percent and the risk decreases even more among persons who quit smoking after ten years [11, 12].

An LMIC country like Pakistan, where majority of the population belong to a low to middle income status smokes on regular basis. According to study by Noreen Shah in Pakistan, 75% males here smoke cigarettes for stress relief, 54% started smoking due to peer pressure. Further Cigarettes marketed in impoverished nations are typically of poor quality and high in tar content, making them even more harmful to one's health [13]. In

2004, there were 5.4 million tobacco-related deaths globally, according to the World Health Organization (WHO) [13]. Lastly, smoking reduces immunity and hence the ability to fight disease, rendering smokers more vulnerable to opportunistic infections. Therefore the purpose of this study is to determine the profile of smoking habits in oral cancer patients.

MATERIALS AND METHODS

This study was an observational case control study which was conducted in the Department of Oral Surgery, Dow University of Health Sciences. The ethical approval was taking from Ethical review committee of the same institute. The duration of the study was 06 months after approval. Inclusion criteria included:

- Biopsy proven Oral Squamous cell carcinoma (OSCC)
- Patients of any age group between 18 years – 85 years
- Patients from either gender.
- Patients with smoking Habit
- Patients who use tobacco regularly in his life at least once a day for month
- Duration of disease ≥ 2 months

Exclusion criteria included:

- Lack of informed consent
- Subjects below the age of 18 years and above the age of 85 years
- Subjects with previous or present history of major illness (diabetes, hypertension, carcinoma, cardiovascular, liver or pancreatic disease).
- Patients who do not smoke tobacco at least once a day for one month
- Patients who has habits of pan, gutka, chalia and smokeless tobacco (other than smoking tobacco)
- Women who are pregnant or lactating or using oral contraceptives

A non-probability sampling technique was applied to recruit the study participants. Overall 100 patients were enrolled and concentrated to participate in this study.

Data Collection Procedure: After approval from ethical board review, patients meeting inclusion criteria mentioned above were enrolled from outpatient department, oral surgery, DUHS. After informed consent, all those patients with biopsy proven oral cancer were interviewed by the same investigator to record data on prescribed performa with the help of investigator. All those who did not fulfil the inclusion criteria were excluded from the study.

Data Analysis: Data entry and analysis were done on SPSS version 17. Using descriptive statistics, frequencies and percentages were calculated for age, gender, size, duration of smoking, and age of starting smoking, type of smoking agent and per day consumption of smoking tobacco. Mean and standard deviation was computed for quantitative variables like age, duration of Habit and per day consumption of tobacco. Stratification was done in terms of gender, age, and duration of habit. Effects and outcomes were seen by applying Chi Square test with < 0.05 as significant. Odds ratio was also computed.

RESULTS

A total of 111 cases were enrolled out of which 101 were males and 10 were females and a total of 132 controls with 95 males and 37 females were taken. 55/111 cases were illiterate, 101 were current smokers, majority of them (82) were Muslims (fig1, table 1). Among cases minimum age was 20 and maximum age was 80.
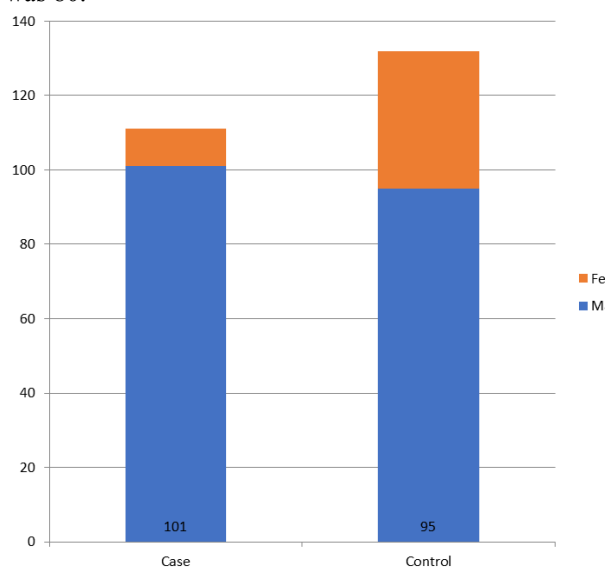

Figure No.1: Gender distribution of patients

Table No.1: Socio demographic characteristics of the participants

	Subject	
	Cases	**Controls**
Age in years (Mean [SD])	51.5856± 14.84432 Min: 23 Max: 80	52.2652± 17.6643 Min: 20 Max: 95
Gender	Male = 101 Female = 10	Male = 95 Female = 37
Education		
Illiterate	55	33
Primary School	29	22
Secondary School	20	35
Higher Education	7	42
Religion		
Islam	82	104
Hindu	15	13
Christian	11	11

Parsi	3	4
Ethnicity		
Urdu Speaking	32	11
Punjabi	17	21
Pathan	10	42
Baloch	19	53
Sindhi	16	4
Memon	9	1
Gujrati/Katchi	8	0
Smoking Status		
Never Smoker	10	25
Current Smoker	101	107
Frequency of Smoking per day		
1-20 Cig	44	38
21-40 cig	35	49
>40 cig	4	20
nill	28	25

Majority of the cases i.e. 44/111 duration of habit was 1-20 years, 70/110 smoked cigarette followed by bidi (table 2).

Table No.2: Patterns of smoking

Duration of Habits	22.3423 ± 13.5011 Min: 05 Max: 60	19.8028 - 24.8819 Min: 05 Max: 65
Age of Starting Smoking	23.9910± 11.34451 Min: 15 Max: 58	18.7576± 11.22 Min: 15 Max: 45
Duration of habit		
1-20 years	44	78
21-30 years	31	36
31-40 years	20	15
>40 years	9	2
never smoker	7	1
Type of Smoking		
cigarette	70	26
bidi	28	13
cigar	3	5
nothing	10	88

According to the site, the most common site where oral cancer/lesion was found in the smokers was in buccal mucosa 38/208 followed by gingiva 25/208 (table 3).

Table No.3:

	Smoking status 2x2		Total
Leasion site	Never Smoker	Current Smoker	
Buccal Mucosa	4	38	42
Gingiva	2	25	27
Floor of mouth	1	11	12
Tongue	2	10	12
Palate	0	11	11
FAuces	1	6	7
no lesion	25	107	132

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FAuces	1	6	7
no lesion	25	107	132
Total	35	208	243

Stratification was done between smoking in terms gender, age, and duration of habit. Effects and outcomes were seen by applying Chi Square test < 0.05 as significant. With respect to smoking status age, gender, education status, duration of habit, type of smoking and lesion sites involved were statistically significant with the smokers (table 4).

Table No.4: Stratification of smoking with different variables

Variables	**P-value**
Age groups	0.05
Gender	>0.001
Education level	>0.001
Duration of habit	>0.001
Type of smoking	>0.001
According to lesion site	>0.001

DISCUSSION

The current study is conducted statistically measured facts and all data related to epidemiology obtained right from diagnosis of Oral SCC. Data is compiled and gathered by a trained clinician using a set of standard questionnaire. Stratification with respect to gender showed that male gender has Oral Cancer (91%) much more than females. Our results are consistent with Park JO et al study in which males are far more likely than females to develop head and neck cancers, regardless of whether they consume alcohol or use cigarettes. The lower region of the upper aero digestive tract, such as the larynx and hypopharynx, has the highest prevalence of head and neck cancer in the 60s [14]. In our study educational level of cancer patients were mostly Illiterate (50%). This finding is consistent with other studies in which oral cancer is linked to a lower education level, which might be attributed to a lack of information about the illness in general, particularly diagnosis and treatment. Because of their low socioeconomic standing, many of these patients are admitted to the public health system [15,16]. Further, Oral cancer is detected at late stages in impoverished nations, but in industrialized countries, the most common stages are I and II. This instance indicated that socioeconomic factors have had a significant impact on the delayed diagnosis [17,18]. More than fifty percent

patients use cigarettes (63%) than other smoking habits and were prone to utilize their habit more then or between 1-20 years (40%).

The predominant use of tobacco smoking in Asia countries is leading cause for the prevalent risk observed. Just 20% of the controls while 63% of the cases were cigarette smokers.

Regarding Data of ex-smokers all previously done studies are capricious and relationship between OSCC is very difficult and that there are chances that different issues intricate in growth and restitution of genetics that lead to cancer.

One attention-grabbing fact observed for present day smokers is that most of them started their habit in teenage and have a significantly higher risk of cancer then their other fellows who started smoking later in life as this fact is found in some early studies and partially clarified statistically that smoking may be responsible for functional changes amongst teen smokers, necessitating an higher tenacity of DNA adducts [19].

This study has limitations that Case control studies has selection bias which we tried to remove by through clinical and pathological detail recording of patient while control subject bias is minimize by excluding patients with other premalignant oral leasions or conditions

The involvement of patients in this study is quite well and it is assured that bias is minimal. All the cancer patients were interviewed before any surgical procedure because procedure can alter smoking habit and make a sampling bias.

CONCLUSION

In conclusion, tobacco is a strong risk factor for oral and pharyngeal Cancer in the Pakistani population. Cigarette smoking presents a higher risk than other type of tobacco smoking. Our study exhibited that leaving the habit do not reduces the risk significantly and that risks are suggestively lower when smoking starts at later ages, having this important implications in terms of prevention.

Limitations: The difference and disparity in results reported in earlier studies at which prognosis changes might reveal several factors, including the method of measurement or, more likely, the peculiarities and idiosyncrasies of the particular sample studied, relatively lesser number of cases of the disease, especially in any one treatment center; the heterogeneity of clinical features such as the extent of the disease at presentation; and, in particular, by the lack of standard clinical, management and laboratory protocols combined with inconsistent recording and reporting of data.

Author's Contribution:
Concept & Design of Study: Saad uddin Siddiqui

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Final Approval of version:	Saad uddin Siddiqui

Conflict of Interest: The study has no conflict of interest to declare by any author.

REFERENCES

1. Dhanuthai K, Rojanawatsirivej S, Thosaporn W, Kintarak S, Subarnbhesaj A, Darling M, et al. Oral cancer: A multicenter study. Medicina oral, Patologia Oral Cirugia Bucal 2018;23(1):e23-e9.
2. Kim YJ, Kim JH. Increasing incidence and improving survival of oral tongue squamous cell carcinoma. Scientific Reports 2020;10(1):7877.
3. Morse DE, Psoter WJ, Cleveland D, Cohen D, Mohit-Tabatabai M, Kosis DL, et al. Smoking and drinking in relation to oral cancer and oral epithelial dysplasia. Cancer Causes Control: CCC 2007;18(9):919-29.
4. Jethwa AR, Khariwala SS. Tobacco-related carcinogenesis in head and neck cancer. Cancer Metastasis Reviews 2017;36(3):411-23.
5. Maasland DHE, van den Brandt PA, Kremer B, Goldbohm RA, Schouten LJ. Alcohol consumption, cigarette smoking and the risk of subtypes of head-neck cancer: results from the Netherlands Cohort Study. BMC Cancer 2014; 14(1):187.
6. van der Waal. Are we able to reduce the mortality and morbidity of oral cancer; some considerations. Medicina oral, patologia oral cirugia bucal 2013;18(1):e33-7.
7. Mello FW, Melo G, Pasetto JJ, Silva CAB, Warnakulasuriya S, Rivero ERC. The synergistic effect of tobacco and alcohol consumption on oral squamous cell carcinoma: a systematic review and meta-analysis. Clin Oral Investigations 2019; 23(7):2849-59.
8. Hydes TJ, Burton R, Inskip H, Bellis MA, Sheron N. A comparison of gender-linked population cancer risks between alcohol and tobacco: how many cigarettes are there in a bottle of wine? BMC Public Health 2019;19(1):316.
9. Jacob L, Freyn M, Kalder M, Dinas K, Kostev K. Impact of tobacco smoking on the risk of developing 25 different cancers in the UK: a retrospective study of 422,010 patients followed for up to 30 years. Oncotarget 2018;9(25):17420-9.
10. Jiang X, Wu J, Wang J, Huang R. Tobacco and oral squamous cell carcinoma: A review of carcinogenic pathways. Tobacco Induced Diseases 2019;17:29.

11. Chaiton M, Diemert L, Cohen JE, Bondy SJ, Selby P, Philipneri A, et al. Estimating the number of quit attempts it takes to quit smoking successfully in a longitudinal cohort of smokers. BMJ open 2016;6(6):e011045.

12. Mishra A, Chaturvedi P, Datta S, Sinukumar S, Joshi P, Garg A. Harmful effects of nicotine. Indian journal of medical and paediatric oncology : official J Ind Society Med Paediatr Oncol 2015;36(1):24-31.

13. Shah N, Siddiqui S. An overview of smoking practices in Pakistan. Pak J Med Sci 2015;31(2): 467-70.

14. Park JO, Nam IC, Kim CS, Park SJ, Lee DH, Kim HB, et al. Sex Differences in the Prevalence of Head and Neck Cancers: A 10-Year Follow-Up Study of 10 Million Healthy People. Cancers 2022;14(10).

15. Gervásio OL, Dutra RA, Tartaglia SM, Vasconcellos WA, Barbosa AA, Aguiar MC. Oral squamous cell carcinoma: a retrospective study of 740 cases in a Brazilian population. Brazilian Dent J 2001;12(1):57-61.

16. Dantas TS, de Barros Silva PG, Sousa EF, da Cunha MDP, de Aguiar ASW, Costa FWG, et al. Influence of Educational Level, Stage, and Histological Type on Survival of Oral Cancer in a Brazilian Population: A Retrospective Study of 10 Years Observation. Medicine 2016;95(3):e2314.

17. Anwar N, Pervez S, Chundriger Q, Awan S, Moatter T, Ali TS. Oral cancer: Clinicopathological features and associated risk factors in a high risk population presenting to a major tertiary care center in Pakistan. PloS One 2020;15(8):e0236359.

18. Auluck A, Walker BB, Hislop G, Lear SA, Schuurman N, Rosin M. Socio-economic deprivation: a significant determinant affecting stage of oral cancer diagnosis and survival. BMC Cancer 2016;16(1):569.

19. Harvey J, Chadi N. Preventing smoking in children and adolescents: Recommendations for practice and policy. Paediatrics Child Health 2016; 21(4):209-21..