Original Article

Investigating Oral Cancer Awareness in Outpatient Settings: A Hospital-Based Study

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ABSTRACT

Aim

The objective of the study was to evaluate the awareness of the incidence, prevalence, etiology, treatment, prognosis and clinical manifestations of oral cancer among a hospital based out-patient population. A questionnaire with structured questions was prepared and distributed among patients to obtain the information. The questions were designed to determine the level of knowledge about the incidence, prevalence, etiology, treatment, prognosis and clinical manifestations of oral cancer.

Method

The study, involving 446 participants, revealed a balanced gender distribution (57.3% males, 42.5% females) with diverse age and education profiles. Oral cancer awareness stood at 74.2%, showcasing variations by age and education. Notably, 66.4% believed oral cancer is preventable, highlighting knowledge gaps and emphasizing the need for targeted awareness campaigns in Pakistan.

Result

The study indicates a noteworthy 75% awareness level among the Multan population regarding oral cancer and its associated risk factors.

Conclusion

Nevertheless, targeted oral health education is warranted for the remaining 25% to further enhance knowledge and promote health-conscious behaviors in the community.

Keywords

oral cancer; oral cancer risk; public health awareness; patient education smokeless tobacco.

INTRODUCTION

Oral cancer ranks as the sixth most prevalent form of cancer globally and has the position of being the second most frequently diagnosed cancer in Pakistan [1]. The occurrence takes place in the vicinity of the upper pharynx, oral cavity,

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or vermilion border. Frequently, the initial manifestation is the appearance of a benign pale area that subsequently undergoes thickening, transitions into erythematous patches, and continues to propagate. The condition gives rise to the development of ulcers that exhibit a gradual progression and fail to undergo the process of healing. Oral cancer encompasses many malignant lesions, such as oral squamous cell carcinoma (SCC), odontogenic tumors, and salivary gland tumors. There are several factors that have been identified as potential contributors to the increased risk of oral cancer. These risks include smoking, alcohol consumption, dietary habits, exposure to radiation, genetic predisposition, compromised immune system, syphilis infection, and occupational hazards [2]. A positive correlation has been seen between the consumption of red meat, cheese, cereals, and various other food items, and an increased susceptibility to mouth cancer. Conversely, a negative association has been established between the intake of vegetables such as green peppers, carrots, citrus fruits, and fresh tomatoes, and the chance of developing oral cancer. Occupations that necessitate employees to allocate a substantial portion of their working hours in outside environments are likewise associated with an elevated level of danger. Ultraviolet (UV) radiation emitted by the sun has the capacity to initiate the onset of lip cancer, a condition that can progress to actinic cheilitis and subsequently advance into squamous cell carcinoma (SCC). The prevention of these malignancies can be achieved through early identification and the mitigation of associated risk factors [3]. Although in Pakistan, among oral diseases dental caries is the most prevalent of all oral diseases. However oral cancer can't be neglected as it's very prominent in Pakistani population [4]. There is evidence that eating green peppers, carrots, and fresh tomatoes reduces the risk of mouth cancer. In contrast, red meat, cheese, rice, and other undefined foods enhance the risk of this malignancy. Outdoor jobs have seen an upsurge in mouth cancer. UV radiation exposure increases the risk of lip cancer and actinic cheilitis, a precancerous condition that can lead to squamous cell carcinoma [5]. Consider oral health as a crucial part of total wellness. Oral diseases and ailments burden the global public health community, lowering quality of life. Dental caries and gingivitis/periodontitis affect a large portion of the global population [6].

The utilization of therapeutic mouthwashes with higher alcohol concentrations should be limited to situations when medical supervision is present. The causation of oral premalignant lesions has been associated with cigarette smoking and fungal infections caused by Candida species, specifically Candida albicans. A comprehensive analysis of existing epidemiological literature indicates a higher prevalence of oral cancer among men compared to women [7,8]. It is worth noting that this gender disparity is particularly pronounced in Asian countries, where men exhibit a greater susceptibility to developing oral cancer in comparison to women. There is a notable correlation between a lower socio-economic position and an elevated prevalence of oral cancer. The lack of understanding and neglect within this particular demographic is the primary cause. The co-occurrence of alcohol consumption and cigarette chewing has been identified as a contributing factor to the heightened susceptibility to oral cancer. Additional risk factors encompass individuals with a low socioeconomic status, a dietary pattern characterized by reduced consumption of fruits and vegetables and diminished nutritional content, inadequate oral hygiene practices, as well as viral infections such as the human papilloma virus [6]. The exacerbation of oral cancer incidence is further compounded by a dearth of awareness on modifiable risk factors. Moreover, there exists a correlation between this phenomenon and elevated expenses associated with medical interventions, prolonged illness, and an increased likelihood of death. Therefore, the cultivation of awareness would prove beneficial in the management, mitigation, and early detection of potential harm or illness.

1.a. Frequency in Pakistan

Oral cancer, which is well recognized as the most prevalent form of cancer globally, afflicts approximately 300,000 individuals on a yearly basis. In the context of Pakistan, it is observed that males are more susceptible to this condition compared to females [7]. Regrettably, Pakistan exhibits the greatest prevalence of oral cancer, as reported by recent studies [8]. This phenomenon can be attributed to the higher prevalence of risk factors in men. Pakistan, akin to several other global regions, exhibits a multitude of danger factors. Based on the available data, it is widely acknowledged that alcohol consumption and cigarette usage are considered to be causal variables [9] as shown in (Table 1). The study's findings, which were published in the Asian Pacific Journal of Cancer Prevention, indicate that the oral cancer registry of the southern Punjab region comprised cases from Bahawalpur, Multan, and a few referrals

from cancer hospitals in Lahore. The prevalence of head and neck cancers treated during the period of 2005 to 2006 was highest in rural Sindh, accounting for 22.6% of cases. This was followed by the Punjab province with a rate of 13.4%, Islamabad with 13.1%, Baluchistan with 11.4%, and KPK with 8.6%

Table 1: Carcinogens of Oral esophageal tract

Carcinogens of Oral esophageal tract	Forms of consumption	Severity level	Reference(s)
Cigar	Smoking	Altered enzymatic metabolism causes cancers of the esophagus, larynx, pharynx and oral cavity.	10–14
Marijuana	Smoking	Oral cancer	12,13
Cigarette	Smoking	Oral squamous cell carcinoma	15
Shisha or Hookah or water pipe	Smoking	Inflammation, esophageal and oral cancer	16–18
Naswar (unsmoked tobacco)	Chewing & Oral snuff	severe damage to the oral mucous membranes, oral cancer	19,20
Betel quid	Chewing	Leukoplakia, erythroplakia, oral submucous fibrosis and oral cancer	21,22
Alcohol	Oral intake	Tumors of the mouth, particularly those of the salivary glands, the pharynx, larynx, esophagus, liver, oral epithelial dysplasia, epithelial atrophy, changed enzymatic activity in the oral mucosa, and a weakened immune system are other oral conditions.	23–25
Gutkka	Chewing	Oral cancer	26
Pan masala	Chewing	Submucous fibrosis of the mouth and oral cancer, particularly salivary gland cancer.	27–29
Mate	Oral intake	Oral carcinogenicity	30

METHODOLOGY

A cross-sectional observational study was conducted at three dental hospitals located in South Punjab, Pakistan. The hospitals that were encompassed in the study consisted of Bakhtawar Amin Dental Hospital, Ibne Sina Teaching Hospital, and Nishter Dental Hospital. The investigation was undertaken in the year 2023. The data collection period spanned from February 2023 through May 2023. A total of 447 people were included in the study, with a response rate of 91%. This study employed a non probability sampling technique known as convenience sampling. The study only included Pakistani individuals who were 15 years of age or older as the criteria for inclusion. Prior to data collection, written informed consent was obtained from all participants. A valid and reliable tool was adapted from previous studies to collect the data after obtaining consent from the authors[5].The questionnaire utilised in the study was administered physically. Participation in the study was completely voluntary, and in order to preserve confidentiality, the participants' responses were anonymized. Participants had the option to voluntarily discontinue their involvement in the study at any point, without being obligated to provide an explanation. The questionnaire consisted of a total of 16 questions, which were further categorised into three distinct sections. The initial phase involved the collection of personal data, including age, gender, educational attainment, and smoking behaviour. Subsequently, the second component examined the existing general understanding and information pertaining to oral cancer, while the final segment appraised the knowledge pertaining to the risk factors associated with the development of oral cancer. The data were presented in number, percentage and figures and the Chi-square test was employed for analysis. The utilisation of the Statistical Package for the Social Sciences (SPSS) version 20 is employed for the purposes of data entry and analysis. A p-value less than 0.05 was deemed statistically significant. The ethical approval for this study was obtained from the Institutional Review Board of Bakhtawar Amin Dental College & Hospital, with the approval number **524-22-COD.**

RESULTS

The demographic characteristics of the respondents are presented in (Table 2). A total of 446 participants took part in the study, with a nearly equal distribution of genders—256 (57.3%) males and 190 (42.5%) females. The age distribution ranged from 15 to more than 51 years, with the majority falling within the 21–30 age group (31.5%). In terms of education, the respondents represented a diverse range, with the highest proportion having a Bachelor's degree (31.1%), followed by those with High School education (21.3%). Smoking habits varied, with 77.4% reporting never having smoked, 17.7% currently smoking, and 4.7% being ex-smokers.

Table 3 illustrates the awareness levels of respondents regarding oral cancer, categorized by age and level of education. Across different age groups, the majority were aware of oral cancer, with a total awareness rate of 74.2%. Notably, the 15–20 age group had the highest awareness (66%), while the older age groups exhibited slightly lower awareness rates. When considering education levels, the highest awareness was observed among respondents with a Postgraduate degree (77.4%), whereas the Uneducated group showed the lowest awareness (70.9%). Statistical analysis using P values did not reveal significant differences in awareness levels based on age (P = 0.22) or education (P = 0.30).

Participants' responses to the item "When you find a small lesion in your mouth, what will you do?" are visually presented in (Figure 1).

A significant proportion, 66.4%, expressed the belief that oral cancer is preventable. Conversely, 12.5% considered it not preventable, and 21.1% were uncertain about its preventability (Figure 2).

Regarding the curability of oral cancer, 62.5% of the participants believed it to be curable. In contrast, 16.1% thought it was not curable, and 21.5% expressed uncertainty about its curability (Figure 3).

Table 2: Demographics of respondents

		n (%)
Gender	Male Female	256 (57.3) 190 (42.5)
Age	15–20 21–30 31–40 41–50 More than 51	50 (11.2) 141 (31.5) 127 (28.4) 79 (17.7) 36 (8.1) 14 (3.1)
Level of education	Uneducated Primary Secondary High school Bachelor Postgraduate	62 (13.9) 98 (21.9) 95 (21.3) 139 (31.1) 53 (11.9)
Smoking	Yes Never smoked Ex-smoker	79 (17.7) 346 (77.4) 21 (4.7)

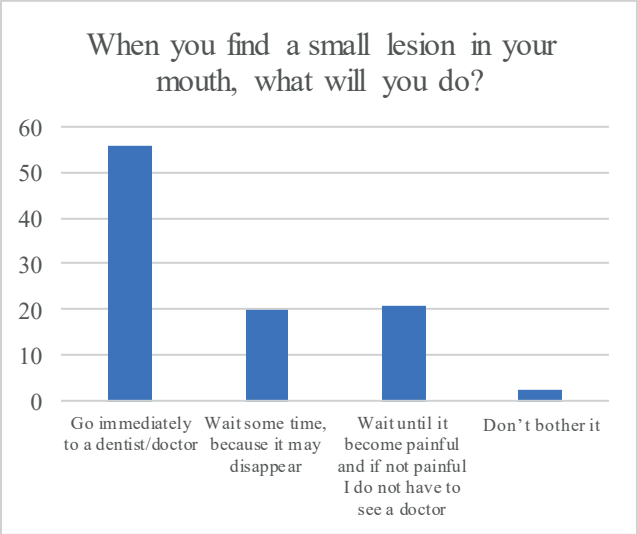

Figure 1: When you find a small lesion in your mouth, what will you do?

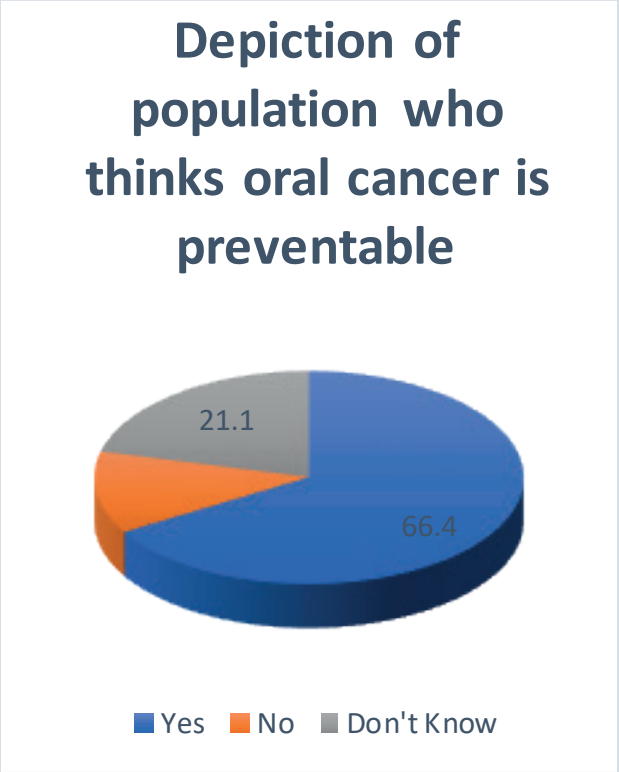

Figure 2: Depiction of population who thinks oral cancer is preventable

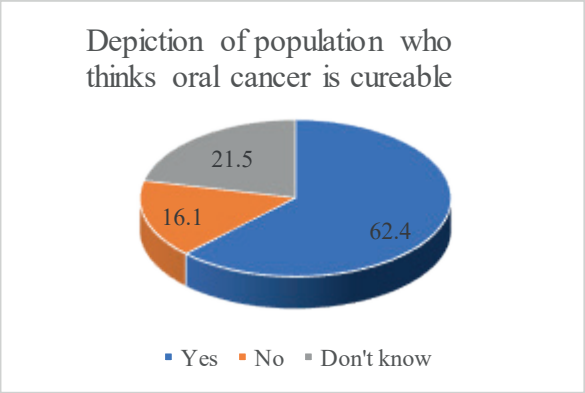

Figure 3: Depiction of population who thinks oral cancer is curable.

Table 3: Awareness towards the oral cancer based on age and education. Are they aware of oral cancer?

		yes	no	Total	P value
Age	15–20	33	17	50	0.22
	21–30	99	42	141	
	31–40	102	25	127	
	41–50	60	19	79	
	More than 51	27	9	36	
		11	3	14	
Total		332 (74.2)	115	447	
Level of education	Uneducated	44	18	62	.30
	Primary	66	32	98	
	Secondary	71	24	95	
	High school	110	29	139	
	Bachelor	41	12	53	
	Postgraduate				
Total		332	115	447	

Table 4: Participants' understanding of oral cancer risk factors.

Risk factor	Frequency	Percent (%)
Old age	10	2.2
Smoking	233	52.1
Alcohol	23	5.1
Sun exposure	12	2.7
Betel Nut chewing	17	26.2
	51	11.4

DISCUSSION

The study aimed to evaluate the level of knowledge and awareness among the general people in Multan City regarding oral cancer, as well as their capacity to recognise risk factors associated with oral cancer. Based on the findings of Globocan 2020, the prevalence of oral cancer in Pakistan stands at 9.5%, positioning it as the second most prevalent form of cancer globally, following breast cancer. Therefore, it is imperative to assess the evolution of public consciousness over a period of time.

One of our key goals is to decrease the incidence of illness or disease. In order to attain this objective, it is imperative for individuals to embrace a health-conscious way of life and mitigate the risk factors associated with oral cancer, namely tobacco use, alcohol consumption, betel nut chewing, and a limited intake of fruits and vegetables [34]. A total of 74% of the survey respondents had familiarity with oral cancer, with 30% of this subset falling within the age range of 31 to 40 years. The aforementioned observation aligns with the outcomes of a research conducted in Lahore, Pakistan in March 2021, when it was discovered that 68.9% of the individuals surveyed were aware of the existence of oral cancer [35]. A significant correlation was seen between socioeconomic characteristics and the level of awareness regarding oral cancer. Our research findings indicate a significant correlation between the amount of education and the awareness of mouth cancer, as well as a correlation between age and oral cancer awareness. A significant proportion of the disparity in awareness levels is observed to be present between individuals lacking formal education and those who have completed high school. The awareness around oral cancer has shown substantial growth due to individuals' life experiences and the implementation of extensive educational initiatives.

The presence of the patient for a screening examination is crucial in facilitating a timely and effective identification of any health issues. The majority of the participants shown a positive disposition towards promptly seeking dental or medical attention upon discovering a minor oral lesion, either immediately or after a short delay. However, a notable proportion of individuals, specifically 20.7%, expressed their intention to refrain from seeking consultation with a professional unless they encountered symptoms of discomfort or distress.

The survey results indicate that 52.1% and 26.2% of participants accurately recognised smoking and betel nut chewing, respectively, as risk factors. Smoking has been identified as the most significant risk factor, as indicated by extensive global study [36,37]. Despite the fact that a significant proportion of the participants had the ability to recognise smoking and betel nut chewing as risk factors, the percentages of individuals who were able to recognise alcohol and sunlight exposure as important risk factors were notably lower at 2.2%, 2.7%, 5.1%, and 11.4% respectively. This finding indicates a deficiency in knowledge regarding these specific risk factors.

CONCLUSION

Based on the results of this study, it can be concluded that a significant proportion, specifically 75%, of the population residing in Multan possesses awareness regarding oral cancer and has acquired sufficient knowledge regarding its established risk factors. However, a significant proportion, specifically 25%, of the population necessitates oral health education in order to enhance knowledge and cultivate a conducive atmosphere that promotes the adoption of healthy lifestyles among the citizens of Multan.

CONFLICT OF INTEREST

The authors affirm that, there are no actual or potential conflicts of interest. This encompasses financial, personal, or other relationships with individuals or organizations that could unduly influence, or be perceived to influence, the integrity and objectivity of the research presented in this manuscript.

AUTHOR'S CONTRIBUTION

Each author made substantial contributions to various aspects of the work, including the conception, design, utilization, collecting, analysis, and interpretation of data. Additionally, they were actively involved in the process of drafting, revising, and critically reviewing the paper. They provided their final permission for the version that was to be published, made the decision regarding the appropriate journal for article submission, and took the responsible decision to assume accountability for all parts of the work.

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Conflicting Interest: **None**

AUTHORS CONTRIBUTIONS

Equal contributions. All authors approved the final version of the article.

Ethical Policy and Institutional Review Board Statement

Added in method section.

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