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Assessing Public Understanding of Oral Cancer: Findings from a Cross-Sectional Survey

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ABSTRACT:

Introduction: Oral cancer (OC) continues to be a major global health concern, marked by a high mortality rate, despite its largely preventable nature. This cross-sectional study sought to assess the current levels of knowledge, awareness, and behavioral patterns among patients from Out Patient Depatment concerning the danger signs connected to Oral Cancer.

Methods: We conducted an anonymous survey consisting of 20 questions, which given to patients in the Dharmsinh Desai University, Nadiad, Faculty of Dental Science waiting areas. The survey responses were subjected to descriptive statistical analysis, and odds ratios pertaining to health literacy regarding Oral Cancer utilizing unconditional univariate logistic regression analysis, risk variables were determined.

Results: 500 dental patients took part in the survey. The demographic analysis indicated that 62.2% of the participants were female. Furthermore, 41% of the entire participant pool had achieved a high school diploma or its equivalent as their highest educational attainment. Significantly, 34% of the participants disclosed current tobacco use or the consumption of smokeless tobacco, whereas 39% had a background of tobacco exposure. Furthermore, 54% of respondents acknowledged tobacco consumption, with varying frequencies : Infrequently (35%), 1-2 times per week (16%), 3-4 times per week (6%), 5-6 times per week (2%), and daily (23%). Additionally, approximately 50% of respondents demonstrated awareness of symptomatology associated with cancer. Notably, 20% of the survey participants reported tobacco cessation.

Conclusion: Our results revealed that individuals consuming over 20 cigarettes daily demonstrated a greater awareness of the correlation between tobacco usage and the risk of OC (Oral Cancer), in contrast to non-smokers and those with a daily cigarette intake of 19 or fewer ($p = 0.0647$). Likewise, individuals who engaged in alcohol consumption exhibited heightened awareness of the increased risk of oral cancer associated with tobacco exposure. In summary, our research indicates that although patients acknowledged the correlation between tobacco use and oral cancer risk, there is potential for enhancing knowledge concerning additional contributing factors. Consequently, targeted education initiatives led by healthcare providers could significantly contribute to improving awareness of oral cancer risk factors.

Keywords: Oral cancer, Awareness, Knowledge, Attitudes, Community surveys

1. Introduction

WHO's International Statistical Classification of Diseases and Related Health Problems (ICD-10) is used to classify oral and oropharyngeal cancers (OC), which include cancers of the lip, buccal mucosa, alveolar ridge, gingiva, tongue, floor of the mouth, tonsil, and both the hard and soft palates in addition to the oropharynx.[1] Annually, 529,500 cases of these cancers are diagnosed worldwide.[2]

Early OC discovery greatly improves the chances of effective therapy and recovery.[3] But a significant portion of patients—40%, to be exact—wait to seek medical care until the cancer has progressed to stages 3 or 4.[4] This delayed presentation is typically linked to local lymph node metastases, requiring rigorous treatment that frequently has unsatisfactory results.[4,5]

One important modifiable factor influencing the high rates of morbidity and death associated with OC is patients' lack of health literacy and awareness of its risk factors and symptoms.[6] Smoking has historically been one of the least recognized major risk factors for OC, with just 25% of people recognizing it as such. [5]. The connection between alcohol abuse and OC is still not well understood, despite improvements in public awareness of tobacco use as a primary cause of the condition.[7] It is estimated that 80% of cases of OC are caused by alcohol and tobacco usage together.8 Not to mention, other risk factors like bad eating and dental hygiene are often disregarded.[7]

HPV type 16 has been identified as a significant risk factor for oral cancer (OC) in recent times. However, there is still a lack of public knowledge regarding this connection.[9,9,11] According to projections made by the Oral Cancer Foundation, among people under 50, HPV 16 may overtake tobacco usage as the leading risk factor for oral cancer.[3]

There are still misconceptions about the risk factors for OC. Patients frequently believe that things like genetics, marijuana usage, HIV infection, and alcohol in mouthwashes are the origin of the disease, even though there is no proof to support this theory. [3, 11] Furthermore, many patients are unaware of the signs and symptoms of OC, such as non-healing ulcers, red or white spots, swelling, and aching tongues.[4, 6, 12] Only one-third of people can accurately recognize a non-healing ulcer as a symptom of OC, according to research. Moreover, less than half of patients with OC were aware of oropharyngeal malignancies prior to receiving their diagnosis.[6]

Our cross-sectional study set out to assess the degree of oral cancer (OC) knowledge and awareness among dental patients awaiting service in the faculty of dentistry science waiting rooms at Dharmsinh Desai University, Nadiad. This study's main goals were to find out how familiar and knowledgeable patients were with over-the-counter (OC) medications and to look for lifestyle choices that would raise their risk of using OC.

2. Method

The research project at the Faculty of Dental Science, Dharmsinh Desai University, Nadiad, completed a thorough review process and was granted exempt status by the Institutional Review Board. The cross-sectional study design was used in the research. All patients between the ages of 18 and were intended to be included. 80 people who were in the Dharmsinh Desai University

Faculty of Dental Science waiting areas, Nadiad for their arranged meetings. a survey instrument that is paper-based and made to be easily understood by readers who are in the fifth grade. There were twenty questions in this poll, and they were divided into sections covering patient socio-demographics, knowledge evaluation, and healthcare practitioners' educational outreach about oral cancer (OC).

The survey's sociodemographic part gathered data on the age, gender, race, ethnicity, educational background, and tobacco-related habits of the patients both now and in the past. The knowledge assessment section consisted of three questions aimed at gauging the participant's awareness of tobacco and OC, their knowledge of signs indicative of mouth cancer, and their understanding of actions that might prevent oral cancer. The educational outreach segment included two questions to ascertain whether healthcare providers were actively educating patients about OC.

The poll took about eight to ten minutes to complete on average. All research participants gave their informed consent, and their answers were kept confidential. People filled out the self-administered surveys while they waited in clinic waiting areas. The survey's aim, duration, answer confidentially, and the option to complete it at any time were all explained to the participants. The dissemination of the survey took place between July and September of 2022, a period of two months. There were no rewards for the participation of the participants.

SAS version 9.4 (SAS Institute Inc., Cary, NC) was used to convert the data from an Excel spreadsheet into an SAS-formatted dataset for analysis.[13] Based on the total number of respondents, missing data rates are indicated for each question; missing data is not included in the study analysis. Tobacco usage was defined for the purposes of this study as using tobacco in a variety of ways, such smoking cigarettes, which were categorized as "smokeless tobacco," and chewing tobacco, which includes mawa, nass, naswar, and toombak.[14]

SAS was used for all data analysis. Descriptive statistics were used to report continuous variables as mean, standard deviation, median, and range, and categorical measurements as percentages with matching 95% confidence intervals (CI). Patient characteristics were grouped based on age, gender, and educational attainment. To evaluate variations in percentages pertaining to OC knowledge, age groups, gender, race, educational attainment, and tobacco use status, Fisher's Exact test was employed. In addition, to investigate the knowledge of particular risk factors linked to overconsumption (OC), chi-square tests and odds ratios (ORs) with 95% confidence intervals were computed. P-values were used to determine statistical significance; values less than 0.05 were regarded as significant.[15,16,17]

3. Results

After entering the data, the accuracy was verified. Participant characteristics Over the course of the three months, 500 surveys in total were gathered and used in the research. Fig. 1 summarizes the characteristics of the participants. Ninety-two percent of the participants were from Nadiad, four percent were from other Gujarati cities, and five percent were not from Gujarat. Of the participants, 92.2% (461/500) were men.

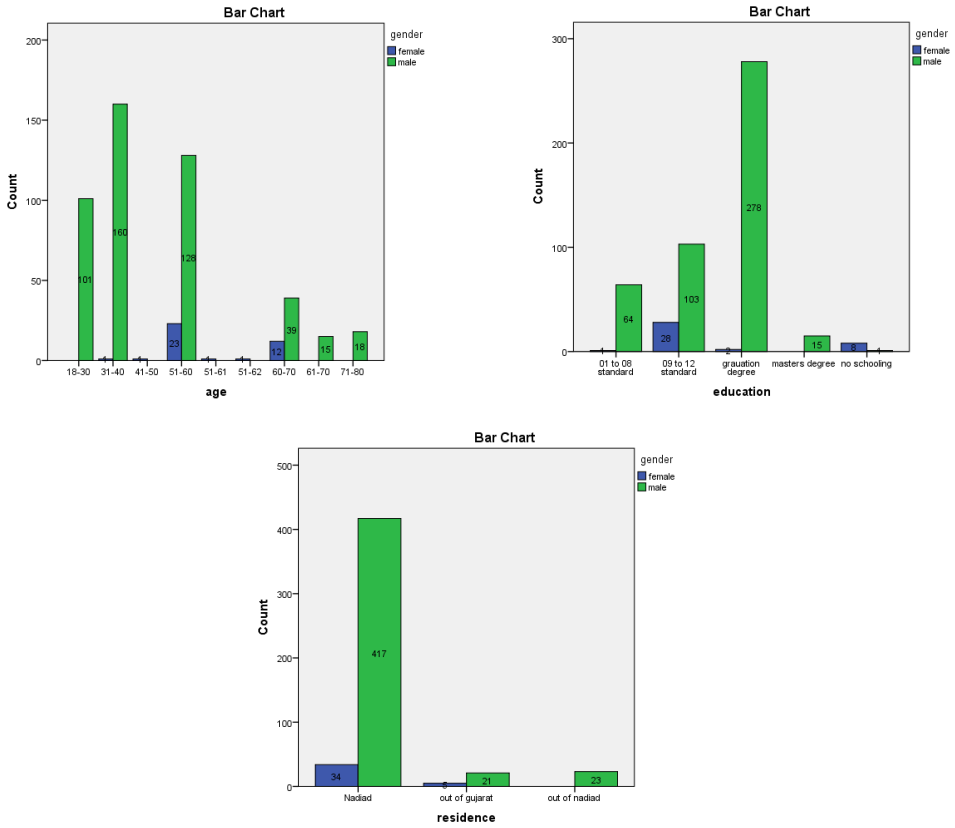


Figure 1: Characteristics of the participants

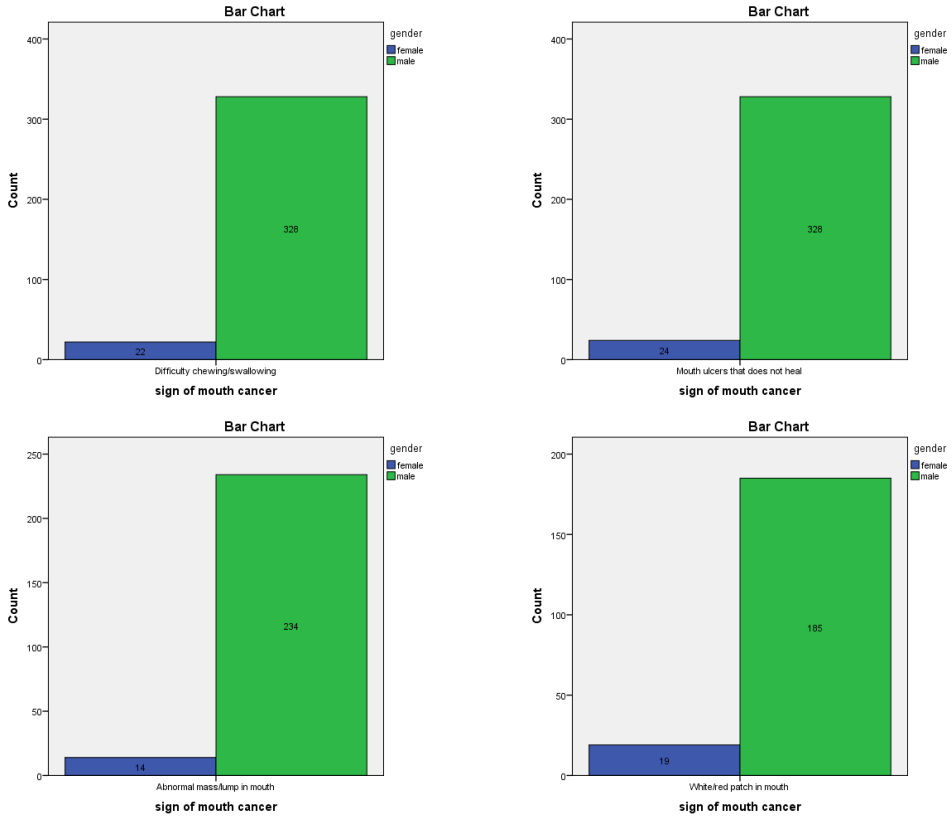
Practice behavior of Tobacco use:
Out of the 500 individuals, 441/500 or 88.2% reported using both smokeless and smoke tobacco currently, while 461/500 or 92.2% reported using both in the past. Table 1 displays the self-reported tobacco consumption.

Parameter	Categories	N	Gender	
			female (N (%))	male (N (%))
How do you consume	Smokeless	352	36 (94.7)	316 (78.2)
	Smoking	90	2 (5.3)	88 (21.8)
Consumed in past	Yes	500	39 (100)	461 (100)
If yes, then how	Smokeless	466	39 (100)	427 (92.6)
	Smoking	34	0 (0)	34 (7.4)
Khaini	No	432	39 (100)	393 (85.2)
	Yes	68	0 (0)	68 (14.8)
Mawa	No	206	21 (53.8)	185 (40.1)
	Yes	294	18 (46.2)	276 (59.9)
Snuff	No	455	1 (2.6)	454 (98.5)
	Yes	45	38 (97.4)	7 (1.5)
Paan	No	80	38 (97.4)	42 (9.1)
	Yes	420	1 (2.6)	419 (90.9)
Frequency	0-1	71	1 (2.6)	70 (15.2)

	2 to 5	201	23 (59)	178 (38.6)
	5 to 10	112	7 (17.9)	105 (22.8)
	more than 10	116	8 (20.5)	108 (23.4)
Duration	1 year	31	1 (2.6)	30 (6.5)
	10 to 20 years	32	0 (0)	32 (6.9)
	2 to 5 years	200	14 (35.9)	186 (40.3)
	5 to 10 years	236	24 (61.5)	212 (46)
	more than 20 years	1	0 (0)	1 (0.2)

Table 1: Self-Reported Tobacco Consumption

Of all the participants, 14% (70/500) said they ate 1 to 2 times a day; 40.2% (500) said they ate 2 to 5 times a day; 22.4% (112/500) said they ate 5 to 10 times a day; and 23.2% (116/800) said they ate more than 10 times a day. OC awareness and knowledge. Nearly majority of the patients said that they learned about OC from their medical professionals, which included doctors, nurse practitioners, medical assistants, and health educators. Over 12.8% of participants had only completed grades 1 through 8, while 26.2% had completed high school (9th to 12th standard). Of the participants, 56% held a bachelor's degree upon graduation, 3% held a master's degree, and 1.6% had never attended any educational institution.



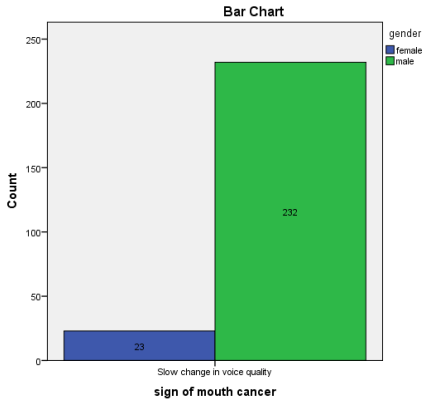


Figure 2: Symptomology and risk variables

The results pertaining to OC symptomology and risk variables are collected in *Figure 2*. According to this number, 18.4% of participants (90 out of 500) smoked tobacco, whereas 70.4% (352/500) used tobacco smokeless.

Based on their observations, the study participants recognized a number of indicators of oral cancer (OC). Just 2.8% of the female participants reported having abnormal masses or lumps in their mouths, compared to a significant 46.8% of male individuals who made this observation. Of the participants, 4.8% of females and 65.6% of males identified mouth ulcers that did not heal. 37% of the male participants and 3.8% of the female participants reported having white or red spots in their mouths. For 4.4% of female participants and 65.6% of male participants, difficulty chewing or swallowing was a problem. Finally, 4.6% of female participants and 46.4% of male participants reported a gradual deterioration in voice quality. These results show that study participants' awareness of various oral cancer symptoms varied according to their gender.

The research participants identified multiple preventive measures for oral cancer. First off, a sizable majority—92.2% of men and 7.8% of women—acknowledged that giving up tobacco smoking is an important step. Furthermore, a significant percentage—0.8% of men and 0.8% of women—emphasized the significance of averting secondhand smoking exposure. Dental hygiene practices were also emphasized, with 4.8% of female respondents and 56.4% of male respondents recognizing the importance of brushing and flossing twice a day. Moreover, a sizable portion—22.2% of men and 1.4% of women—acknowledged the importance of alerting their dentist to any anomalies seen in the mouth. These results highlight the participants' awareness of several oral cancer preventative measures.

4. Discussion

The results of our current survey (Table 2) have provided important new information on the public's understanding of tobacco use as a major risk factor for oral cancer (OC). Remarkably, a whopping 92.2% of survey respondents showed a good awareness of the connection between tobacco use and an increased chance of having OC. This awareness highlights a critical understanding among the general public about the possible health risks related to tobacco use. Notable was the overwhelming recognition (92.2% of responders) that giving up tobacco use can significantly reduce the risk of mouth cancer.

Despite this commendable awareness, a concerning trend emerged when analyzing the participants' tobacco consumption habits. Astonishingly, approximately 88.2% of the surveyed patients, totaling 441 out of 500, reported being current tobacco consumers. This large discrepancy between awareness and behavior draws attention to a crucial gap in public health activities, highlighting the significance of converting knowledge into concrete behavioral change.

One alarming finding pertains to the insufficient rate of patients reporting receiving counseling from healthcare providers concerning OC risk. In comparison to the well-acknowledged risks associated with tobacco exposure, participants exhibited lower levels of awareness regarding additional OC risk factors. For instance, only 61.2% of respondents (306 out of 500) were aware of the significance of maintaining good oral hygiene through regular brushing and flossing. For example, only 61.2% of participants (306 out of 500) understood how important it is to practice frequent brushing and flossing to maintain good dental hygiene. Furthermore, only 9.6% of participants (48 out of 500) showed that they were aware of the dangers of being around secondhand smoke.

The rate of patients reporting current tobacco use was 88.2% (441/792), surpassing rates most recently published by the Centers for Disease Control (CDC), despite information regarding the harm associated with tobacco intake.[18,19]

When less comprehensive, highly effective curative treatment is needed, participants who lack knowledgeability and are generally uninformed of the risk factors contributing to OC are more likely to appear with the condition at an advanced stage. Primary tumor removal is typically the first step in the curative treatment of OC, although more widespread involvement may necessitate more involved surgical procedures and/or rigorous chemotherapy, frequently in conjunction with intensive supplementary care.[20]

The knowledge of sun exposure as a risk factor for basal cell carcinoma was not included in this analysis, which makes sense given that 97% of oral malignancies are squamous cell carcinomas.[21] To sum up, even though our research has highlighted a commendable level of awareness among participants regarding the risks of tobacco use and its connection to oral cancer, the persistently high rate of tobacco consumption and the lack of awareness regarding additional risk factors pose significant challenges. Bridging these gaps necessitates a multi-faceted approach, including targeted public health campaigns, enhanced counseling services from healthcare providers, and a more comprehensive dissemination of information to empower individuals in selecting wise decisions for their oral health.

Parameter	Categories	N	gender	
			female (N (%))	male (N (%))
Residence	Nadiad	451	34 (87.2)	417 (90.5)
	out of gujarat	26	5 (12.8)	21 (4.6)
	out of nadiad	23	0 (0)	23 (5)
Education	01 to 08 standard	65	1 (2.6)	64 (13.9)
	09 to 12 standard	131	28 (71.8)	103 (22.3)
	grauation degree	280	2 (5.1)	278 (60.3)

	masters degree	15	0 (0)	15 (3.3)
	no schooling	9	8 (20.5)	1 (0.2)
Currently consuming tobacco	no	59	1 (2.6)	58 (12.6)
	yes	441	38 (97.4)	403 (87.4)
How do you consume tobacco	smokeless	352	36 (94.7)	316 (78.2)
	smoking	90	2 (5.3)	88 (21.8)
Consumed in past	yes	500	39 (100)	461 (100)
if yes, than how	smokeless	466	39 (100)	427 (92.6)
	smoking	34	0 (0)	34 (7.4)
Paan	No	80	38 (97.4)	42 (9.1)
	Yes	420	1 (2.6)	419 (90.9)
Frequency	0-1	71	1 (2.6)	70 (15.2)
	2 to 5	201	23 (59)	178 (38.6)
	5 to 10	112	7 (17.9)	105 (22.8)
	more than 10	116	8 (20.5)	108 (23.4)
Duration	1 year	31	1 (2.6)	30 (6.5)
	10 to 20 years	32	0 (0)	32 (6.9)
	2 to 5 years	200	14 (35.9)	186 (40.3)
	5 to 10 years	236	24 (61.5)	212 (46)
	More Than 20 Years	1	0 (0)	1 (0.2)
Places where you consume tobacco	Both	145	12 (30.8)	133 (28.9)
	Home	157	11 (28.2)	146 (31.7)
	Office	198	16 (41)	182 (39.5)
Why did you start the habit	Peer	59	3 (7.7)	56 (12.1)
	Personal	291	31 (79.5)	260 (56.4)
	Professional	150	5 (12.8)	145 (31.5)
Have you tried to stop using tobacco	No	158	10 (25.6)	148 (32.1)
	Yes	342	29 (74.4)	313 (67.9)
Ever tried any nicotine replacement products	No	158	10 (25.6)	148 (32.1)
	Yes	342	29 (74.4)	313 (67.9)
Do you know that tobacco may cause mouth cancer	No	161	18 (46.2)	143 (31)
	Yes	339	21 (53.8)	318 (69)
sign of mouth cancer	Difficulty chewing/swallowing	350	22 (100)	328 (100)
sign of mouth cancer	Mouth ulcers that does not heal	352	24 (100)	328 (100)
sign of mouth cancer	Abnormal mass/lump in mouth	248	14 (100)	234 (100)
sign of mouth cancer	White/red patch in mouth	204	19 (100)	185 (100)
sign of mouth cancer	Slow change in voice quality	255	23 (100)	232 (100)
actions may prevent mouth cancer	Quit tobacco use	500	39 (100)	461 (100)

actions may prevent mouth cancer	Avoid contact with secondhand smoke	48	4 (100)	44 (100)
actions may prevent mouth cancer	Brush and floss your teeth twice/day	306	24 (100)	282 (100)
actions may prevent mouth cancer	Telling your dentist when you find any abnormalities in your oral cavity	118	7 (100)	111 (100)
healthcare provider educate you about mouth cancer	Yes	500	39 (100)	461 (100)
willing to quit your habit	Yes	500	39 (100)	461 (100)

Table 2: Results of current study

Study limitation

This study, which focuses mostly on the quantitative evaluation of patients' knowledge, awareness, and lifestyle habits associated to oral cancer (OC), recognizes a number of limitations inherent in its methodology. Our survey tool's face and content validity were the only areas it was validated, which may have compromised its accuracy. Additionally, our capacity to validate these findings is limited by the use of patient self-reported data. Only one healthcare system was used for the data collection, which limited the results' generalizability and raised questions regarding selection bias within the intended audience.

Another drawback is the lack of tests on general health literacy and oral health literacy. Multiple responses may be made to surveys that are anonymous and optional, and some questions—like those regarding quitting smoking—lack nuanced response possibilities. Since patients might have greater access to healthcare-related information than the general public, future research could expand its reach to evaluate the knowledge and awareness of the larger community.

5. Conclusion

In summary, our data indicates that patients are typically aware of the connection between tobacco use and the risk of oral cancer, but they are not as knowledgeable about other risk factors. The main focus of this study was health literacy in relation to identified OC risk factors. Our cross-sectional, population-based study's results have led us to believe that there may be a need for more comprehensive health literacy campaigns pertaining to oral cancer. To lessen the burden of OC, especially in the lack of population-based screening recommendations, these programs should focus on both patients and medical professionals with the ultimate goal of improving outcomes through early identification.

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