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Internet Usage for Information on Habit Related Oral Mucosal Lesions and Oral Cancer

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Abstract: ***Aims and Objectives: To assess the internet usage pattern among patients with tobacco habits regarding tobacco habit related oral mucosal lesions and oral cancer. Materials and methods: A 14 item questionnaire was given to 600 participants. Participants were divided into two groups, Group 1 (G-1) with tobacco habits and Group 2 (G-2) without tobacco habits. All the responses were tabulated and statistically analysed in SPSS software version v.22.IBM, corp. Results: The overall internet usage for health information was an average of 50%. Among the internet users, 3.7% (G-1) and 2.3% (G-2) check for information on tobacco induced oral mucosal lesions regularly. Post graduates and patients with habit were more aware of the terminologies like leukoplakia and OSMF. None of the patients with habits had searched for habit cessation related information. Conclusion: Patients using internet for awareness regarding tobacco related habit and associated oral mucosal lesion are less. Those who are using internet are failing to convert it into habit cessation practices.***

Keywords: Awareness, Internet, Oral Mucosal lesions, Oral cancer, Tobacco

1. Introduction

Myriad forms of tobacco products are used in different parts of the world and South East Asia region is home to 90% smokeless and smoking form of tobacco. There is sufficient evidence according to the international agency for research of cancer to show that tobacco is carcinogenic. Also, there are studies which show 7 times higher relative risk of having oral dysplastic lesions among smokers compared to non-smokers.[1]

Indian continent shows highest incidence and prevalence of developing oral cancer due to tobacco and arecanut chewing habit.[2]With increase in public awareness programs in audio visual media and education level of general population, there has been a gradual rise in awareness of effects of tobacco habits and its related issues.With the era of digitalisation and the ease of access to internet through laptops, phones and tablets this population is turning to internet for answers.

Hence this study was conducted to assess the usage of the internet for obtaining information on tobacco habit related oral mucosal lesions and oral cancer among South Bangalore population with tobacco habits.

2. Objectives

1. To assess the awareness among the population regarding tobacco habit related oral mucosal lesions and oral cancer.
2. Assess the prevalence of internet usage for tobacco habit related oral mucosal lesions and oral cancer.
3. Assess their attitude towards the information obtained through internet regarding tobacco habit related oral mucosal lesions and oral cancer.

3. Materials and Methods

Study group consisted of patients visiting the Department of Oral Medicine and Radiology. Institutional ethical clearance was obtained and the study was conducted from July 2015 to July 2016.

The inclusion criteria were:

- Subjects should be of 18 years or above.
- Patients should have access to internet connection.
- Patients should have a minimum education of IInd PUC or equivalent education qualification.

A 12-item questionnaire containing a combination of open and closed-response options was prepared and a pilot study was done. The questionnaire was validated. Based on the responses, few questions were reframed and finally a 14 item questionnaire with closed-response options was formatted for the study.

Sample Size Estimation

$$N=\frac{Z\ 2\ (1-\alpha)\ X\ PQ}{\delta^2}$$

Z (1-α)= 1.96 (For 95% Confidence Interval)

P=0.25 [Based on the probability, that at least 25% of the Bangalore population uses

Internet for information on Habit Related Oral Mucosal Lesions & Oral Cancer].

Q=1-P

δ (Margin of Error)=0.05

N=288, rounded off to 300

The obtained sample size is multiplied by 2 to compensate for the design effect on sampling; hence the final sample size is 600.

Those patients were grouped as with tobacco habits and without tobacco habits. 300 patients were assigned for each group. After patients' chief complaints were addressed, they were explained about the study and informed consent was taken for participating in the study. Patients were allowed to ask questions if any part of the question was not clear to them.Patients were allowed to skip mentioning their name, if they wanted to remain anonymous. The questionnaire which was to be answered by the study subjects was handed in the dental chair itself. An average of 5 to 15 minutes was taken by the participants to complete the questionnaire based on their ability to comprehend the questions. All the responses were tabulated and statistically analysed in SPSS software version v.22.IBM, corp.

4. Results

The total sample size was 600 with 300 patients each in two groups, group 1 (with tobacco habits) and group 2 (without tobacco habits). Group 1 had 78% male and 28% females. Group 2 had 55% males and 44% females. The demographic detains are given in Table 1. 54.7% in G 1 and 49.3% in G 2 used internet for health related information.

Prevalence of habits and internet usage (question 1, 2 and 5)

81.7% in G1used tobacco and 18% Alcohol.G 1 had 54.7 % of internet users for health information and G 2 had 49.3%. The percentage internet users for oral health related information were 37.5% in G1 and 36.3% in G2.

Knowledge and Awareness

60% in G 1 and 59.3% in G2 were aware of the relation of habits with oral lesions and 50% in both the groups aware of their relation with oral cancer.

Most commonly known term was oral cancer followed by leukoplakia and OSMF. Most commonly used source of information was Google.

Most commonly searched information was How to maintain tooth from getting stained after tobacco use followed by How to stop the habit in G1 regarding habits. Regarding cancer and treatment related information different types of change in oral mucosa (red/white patch, reduced mouth opening/burning sensation in mouth) and Symptoms of oral cancer were mostly searched in G 1 and G 2.

Attitude

In G1 and In G 2 felt the information obtained was relevant and optimistic was the most common feeling after reading the information in both the groups. Most of the patients (81.1% G1 and 87.4% G2) did not hesitate to discuss the information obtained with their dentist. All the answers were assessed according to their education level and profession also.

5. Discussion

The primary outcome assessed in the study was the internet usage pattern among patients with tobacco habits regarding tobacco habit related oral mucosal lesion and oral cancer. Secondary outcomes measured were influence of education and profession on their usage pattern and the attitude towards the information they obtained from internet.

There was a significant difference in gender between the groups. (78% male and 28% females in group 1; 55% males and 44%females in group 2). This could be attributed to high prevalence of tobacco habits in males and to the fact that females are generally hesitant about reporting their habits. There was no significant difference between the groups with respect to age, education and profession (Table 1). Among patients with tobacco habits, 245 (81.7%) had the habit of tobacco and18% had the habit of alcohol.

The overall internet usage for health information was an average of 50% (Table 2).A study by Arekeret al[3]in 2005 and another study by Via Media[4] reported that 24% and 49% of Indians respectively use digital media to either read information on health or use the internet as the first port of call for data before visiting a Doctor. Internet usage in our study population was more than Wang et al[5]study (30% in Australia) and Murray et al[6] study (31% US) and less than Cohen et al[7] study (61% US). There was no significant difference between two groups (G-1: 49% and G-2: 50%).

In the present study, influence of education and profession on patients' awareness and dependency on internet was assessed. For that the population was divided as pre-university, graduates, professionals and postgraduates for education and student/Housewife/unemployed, unskilled, worker, semiskilled worker, business and professionals according profession. In our study 64% of post graduates in G-1 and 82% in G-2 used internet for health related information.

Ahireet al[8] (2016) reported that only 44.9% of their study population was aware of existence of an entity called as oral pre-cancer. Shah et al study in rural Indian population 65% were aware of effect of habits with oral cancer

development but, none of the patients were aware of the term pre cancer.[9]In the present study, 60% were aware of changes in mouth due to tobacco habit and 50% knew its relation with cancer. Majority of the population had heard of the term oral cancer (84% in G-1 and 94% in G-2). Education and presence of habit had an influence over patients' awareness. Post graduates were more aware of the terms like leukoplakia (24% and 4.3 % in G-1 and G-2 respectively) compared to other population. Patients with tobacco habit seemed to be more aware of the terms like leukoplakia (35%) and OSMF. This could be due to having these problems themselves or by reading from internet when they were searching for the effects of their habit. Among the internet users, 3.7% (G-1) and 2.3% (G-2) check for information on tobacco induced oral mucosal lesions regularly. This could be attributed to lack of awareness regarding oral mucosal lesions. When, the reason for not using internet was asked majority of the responders preferred physicians over the internet.

Among patients who used internet source of information for majority of patients was Google (88.7% and 96.3%). Most searched topic was, "How to prevent tooth staining after tobacco use?" in group 1 (61%) and "How to stop the habit?" in group 2 (54%). The significant point noted was that despite being educated and aware of mucosal changes and their relationship with cancer these patients continued with their habit. None of the patients in habits group searched about habit cessation or the centres where it could be done. This indicated that though they have access to knowledge either from media or internet they are failing to convert it into positive health related habit either due to incomplete understanding or ignorance. Regarding oral mucosal disease and oral cancer treatment, most of the queries were regarding different types of changes seen (27%), causes of cancer (27%) and side effects of various treatment modalities (38.3%).

When the barriers for internet use were assessed, G-1 had difficulty due to too much information on internet (28.6%). In G-2 the major difficulty was navigation searching difficulty (22.5%). This difficulty was more prevalent among patients who were not professionals indicating the effect of education and profession on their prowess of using the internet.

Majority of the patients in both the groups felt that the information obtained from internet was relevant and 102 (92%) in G-1 and 109 (100%) in G-2 patients who used internet felt optimistic about their situation. There is an increased concern about the strain on doctor-patient relationship due to information obtained from internet. Murray et al[7] reported that internet, has more positive than negative effect on this relationship. Our study results agreed with Murray et al study[7] as 80% of patients did not hesitate to discuss the information obtained from the internet with their dentist.

6. Limitations Future Recommendations

Our sample was limited to the population visiting the dental college OPD only. It may not be a true representation of larger population as more people with lesions will be visiting the hospital. Institutions were study was conducted located in urban area so the population represented here could not be applied to rural area.

The questionnaire was in English. So the study population was limited to only those who could read English. In India there are various languages and digital information is available in many of them. Such population was not included in the study.

Further studies with large sample size and in rural set up and questionnaire administered in regional language is recommended.

To conclude, due to various information sources in digital media the oral physicians are no longer the sole source of information regarding health issue. The onus of guiding these patients to proper websites (Table 4) [10] for quality information and converting this knowledge into positive oral health practice falls on the health care professional. This will give an opportunity to turn the online minefield of health facts, figures and stories into a gold mine of information which could potentially have a considerable effect on improvement of patient health and healthcare practice.

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Table 1: Demographic characteristics of participants

Comparison of demographic characteristics of participants among two study groups						
Variables	Category	With Tobacco Habits (n=300)		Without Tobacco Habits (n=300)		P-Value
Age	Mean & SD	28.9	8.0	29.3	8.8	0.55[a]
Gender	Males	216	72.0%	167	55.7%	<0.001*[b]
	Females	84	28.0%	133	44.3%	
Education	Pre-University	45	15.0%	57	19.0%	0.11[b]
	Graduates	133	44.3%	146	48.7%	
	Post Graduates	37	12.3%	23	7.7%	
	Professional education	85	28.3%	74	24.7%	
Profession	Student/Housewife/unemployed	69	23.0%	93	31.0%	0.11[b]
	Unskilled Worker	7	2.3%	3	1.0%	
	Semi-skilled Worker	80	26.7%	81	27.0%	
	Skilled Worker	26	8.7%	20	6.7%	
	Business	10	3.3%	15	5.0%	
	Professionals	108	36.0%	88	29.3%	

a. Chi Square / Fischer's Exact Test
b. Mann Whitney U Test

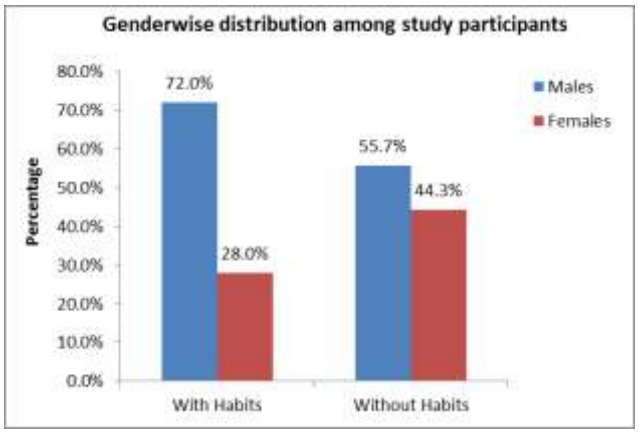

Table 2: Patients response to question regarding their usage of internet for health related and oral lesion related information

Question	Response	With Habits	Without Habits
Q2	No	45.3%	50.7%
	Yes	54.7%	49.3%
Q5	Never	61.7%	63.7%
	Occasionally	34.7%	34.0%
	Regularly	3.7%	2.3%

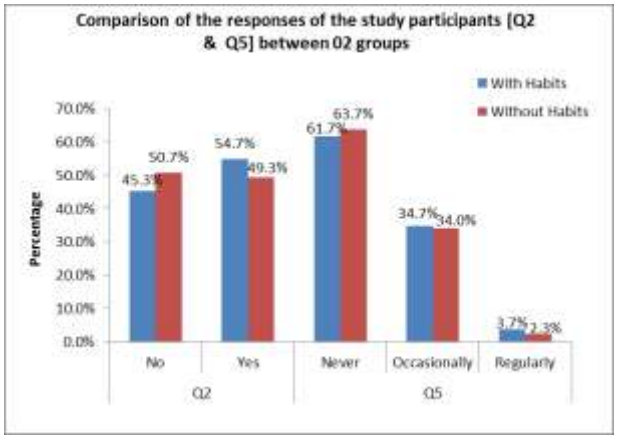

Table 3: Patients response to questions regarding their awareness

Question	Response	With Habits	Without Habits
Q3a	No	40.0%	40.7%
	Yes	60.0%	59.3%
Q3b	No	49.7%	49.3%
	Yes	50.3%	50.7%
Q4a	No	88.3%	97.0%
	Yes	11.7%	3.0%
Q4b	No	99.7%	97.0%
	Yes	0.3%	3.0%
Q4c	No	15.3%	5.7%
	Yes	84.7%	94.3%

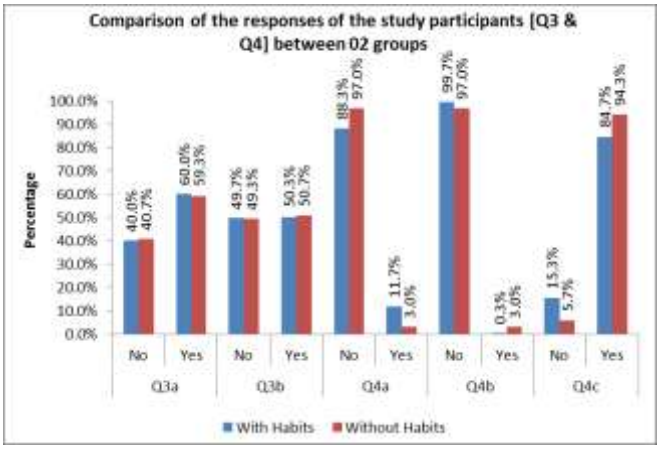

Table 4: Websites to obtain information on heath related topics

Centers for Disease Control and Prevention (CDC). Oral Health Resources <http://www.cdc.gov/OralHealth/>	Provides health information and statistics on health and safety topics including diseases and conditions, life stages and populations, and healthy living
MedlinePlus . Mouth and Teeth <http://www.nlm.nih.gov/medlineplus/mouthandteeth.html>	This search website, established and maintained by the National Library of Medicine, includes oral health information among its 740 health topics. Representative topics include gum disease, dentures, piercing and tattooing, and cancer. This site also includes drug information, medical dictionary and encyclopaedia, and health provider directories that include dentists.
National Cancer Institute (NCI) Oral Cancer Home Page <http://www.cancer.gov/cancertopics/types/oral/>	The Oral Cancer Home Page provides access to research-based resources. The page includes definitions, clinical trials, prevention, genetics, causes, screening, research, statistics, and treatment options. There are separate links for patient and health professionals that facilitate selection of consumer-oriented information.
USA.gov <http://www.usa.gov/>	USA.gov, the U.S. government's official Web portal, provides one stop access to federal government agencies including the National Cancer Institute and National Institute of Dental and Craniofacial Research
Academy of General Dentistry <http://www.agd.org/>	This professional association site provides a ''For the Public' link. Oral health resources in Question and Answer format with a printer-friendly version, and patients can ask questions to dentists also in this site.