

A CROSS-SECTIONAL STUDY ASSESSING THE KNOWLEDGE, AWARENESS AND PERCEPTION OF RISK FACTORS OF ORAL CANCER AMONG THE ADULT POPULATION IN KOLKATA

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Abstract -Oral cancer is the commonest cancer in India, accounting for 50-70 % of total cancer mortality. It is the 6th most common cancer worldwide. Sites that get affected are anterior tongue, cheek, floor of mouth or any other part of oral cavity. Several risk factors are implicated in the development of oral cancer, of which the most common and established are tobacco smoking and betel quid chewing. The objective of this study is to determine the level of knowledge about the causes and risks of oral cancer in a specified group of population, to assess the level of awareness to prevent the occurrence of oral cancer, to understand the perception regarding the intake and usage of tobacco and non tobacco products. This was a cross sectional study. Study subjects included were the adults of both the sexes, age group 18-58. Method of data collection was direct interview with a calibrated questionnaire. In our study representing 200 samples, we could investigate the potential link between the use of tobacco and oral cancer. There was a significant positive and significant association of cigarette smoking and a particular age group, cigarette smoking and males, smokeless tobacco (khaini) and females. Maximum participants were of the

opinion of not to ban the tobacco from the country.

Key Words: Oral cancer, tobacco, risk

1. INTRODUCTION

Cancer is a group of diseases which involves abnormal cell growth with the potential to invade or spread to other parts of the body. Possible signs and symptoms include abnormal bleeding, a lump, prolonged cough, unexplained weight loss, and a change in bowel movements. While these symptoms may indicate cancer, they can also have other causes. Over 100 types of cancers affect humans. Cancer is the second most common cause of death in India (after cardiovascular disease). Tobacco use is the cause of about 22% of cancer deaths, 10% cancer deaths are generally due to obesity, poor diet, lack of physical activity, or excessive drinking of alcohol. In the developing countries, 15% of cancers are due to infections such as *Helicobacter pylori*, hepatitis B, hepatitis C, human papillomavirus (HPV) infection, Epstein – Barr virus, and human immunodeficiency virus (HIV). Cancer can be detected by certain signs and symptoms or by screening tests. It is then further investigated by medical imaging followed by a biopsy. Metastasis is one of the hallmarks of cancer which distinguishes it from benign tumors. Most cancers can metastasize, although in varying degrees. The lungs, liver and bones are the most common metastasis locations from solid tumors. Oral cancer, also known as

mouth cancer, is a cancer of the lining of the lips, mouth or upper throat making it the sixth most common cancer in the world. With a delayed clinical detection along with a poor prognosis and without specific biomarkers for the disease and expensive therapeutic alternatives, it remains a significant public health problem. Survival for oral cancer has not improved significantly, despite the progress in research and therapy, thus making it a highly relevant problem of global public health. It is among the top three cancers in India, number one among all cancers in men and number three among female cancers. Oral cancer is rare in children and young adults and the risk of developing an oral cancer is twice more in men than in women. According to International Agency for Research on Cancer (IARC) for oral cancer, the areas for oral cancer includes lips, tongue, gingiva, mouth floor, parotid and other salivary glands. It is associated with multiple risk factors and high mortality rates and despite being highly preventable contributes to the global cancer burden. Smoking and alcohol consumption are considered as major risk factors of oral cancer. IARC classifies human papilloma virus 16 as a cause for cancers of the oral cavity. Other risk factors include poor diet, chewing paan, areca nut, betel nut. In 2018, oral cancer occurred globally in about 355,000 people and resulted in 177,000 deaths. Tobacco (smoked and smokeless) use accounted for 3,17,928 deaths (approx.) in men and women in India in 2018. The prognosis of oral cancer has remained unchanged for decades. It has got 5 year survival rates or even lesser in the developing and under - developed countries. Oral cancer can be prevented by avoiding tobacco products, by limiting alcohol use, protection the lower lip from sun, HPV vaccination, and avoidance of paan. Oral squamous cell carcinoma is a disease of environmental factors, mainly tobacco. The rate at which cancer develops depends on the dose, frequency and method of application of the carcinogen (the substance which is

causing the cancer). Apart from cigarette smoking, other carcinogens for oral cancer comprises of alcohol, viruses (particularly HPV 16 and 18), radiation, and UV light. Tobacco is the greatest single cause of oral and pharyngeal cancer. It is a multi-organ carcinogen. It has a synergistic interaction with alcohol to cause cancers of the mouth and pharynx which involves direct damage to the cellular DNA. Studies suggest that alcohol-containing mouthwashes as also being potential causes. Constant exposure to these alcohol-containing rinses leads to significant increases in the development of oral cancer, even in the absence of smoking and drinking.

2. METHODOLOGY

The study was granted exempt status by Nezamuddin Shams (Ward Counsellor, Kolkata Municipal Corporation). A cross-sectional study design was applied and the people who had the habit of consuming alcohol or tobacco regularly and were between 18 to 60 years, irrespective of sex, was included in the study. A paper-based multiple choice survey tool which consisted of 23 questions was developed and organized into subsections including: socio-demographics, personal habits, knowledgeability assessment, understanding about the risk factors related to oral cancer and the perception towards it. For the purpose of the study, cigarette and bidi were included as 'smoking tobacco' and khaini, pan, pan masala, gutka, zarda, betel quid were included as 'smokeless tobacco'. Socio-demographic survey questions captured the age, gender, educational status, occupation and socio-economic status of the family (per month). The personal habit survey part had 3 questions which included the habit of the person, how often does he / she consume it and since when is he / she consuming it. The knowledgeability assessment consisted of 5 questions regarding the family history of oral cancer, has the person suffered from any

cancer earlier, does he / she suffer from a mouth sore very often, whether he / she knows about the clinical signs and symptoms of the oral cancer and whether any healthcare professional has ever warned him / her regarding oral cancer. The risk factors part of the survey had 8 questions; whether they clean their teeth daily, what method is used by them for cleaning, whether they consume low amount of fruits and vegetables (less than 5 servings per day), whether they have any ill-fitting dentures or any sharpened object hurting in their mouth, do they consume hot beverages regularly, are they frequently exposed to sun rays, do they consider regular alcohol consumption as a risk factor of oral cancer and do they consider regular tobacco consumption as a risk factor of oral cancer. The perception part of the survey had only 1 question which was do they believe that tobacco should be banned from the country.

The study participation was voluntary and anonymous. The people who were willing to participate were given an informed consent form so that they could understand the nature of the study. For the participants who were illiterate or were unable to read English, the informed consent form as well as the questionnaire of the survey was translated into Hindi or Bengali. For such participants, the questionnaire was filled in by the survey team. For the rest of the participants, the time for completion of the questionnaire was estimated at 8 to 10 minutes.

The survey responses were manually entered into Microsoft Excel. There was no missing data recorded in the survey. The samples are matched by age and gender. The sample size is calculated by using the formula:

$$n = Z^2 P (1 - P) / d^2$$

where,

n = sample size

Z = level of confidence (95%)

P = expected prevalence (64.7%)

d = precision

Thus, a sample size of 236 is obtained. 36 participants had been dismissed due to incomplete questionnaire and irrelevant information which was provided. Statistical analysis was done using SPSS statistical software. Level of significance is taken to be 0.01

3. DATA ANALYSIS & RESULTS

A) PARTICIPANT DEMOGRAPHICS

A total of 200 participants were included in the study during a period of one month (August 2019). Of the total number of participants, 68.5% (137/200) were male and 31.5% (63/200) were female. 40% (80/200) were in the age group of 18 to 30 years, 19.5% (39/200) were between 31 to 40 years, 18.5% (37/200) were between 41 to 50 years, and 22% (44/200) were between 51 to 60 years. As per the educational qualification, 15% (30/200) of the participants were illiterate, 11.5% (23/200) had studied till primary level, 16.5% (33/200) had studied between primary to middle level, 19% (38/200) had studied between middle to higher level, 36% (72/200) were graduate and only 2% (4/200) were post graduate. Regarding the occupation of the participants, 1.5% (3/200) were in the government service, 36% (72/200) were in the private service, 39% (78/200) had their own business, 10.5% (21/200) were unemployed and 13% (26/200) were under others category (which included house maids, rickshaw pullers etc.).

B) PRACTICE BEHAVIOUR

TOBACCO USE—95 and 59 participants had a habit of smoking cigarette and bidi respectively regularly. The participants included in the study were also interviewed about their smokeless tobacco consumption. Khaini, Gutka, Zarda, Betel Quid, Pan, and Pan Masala were some of the forms of smokeless tobacco that were used by the participants. Khaini was consumed by 37 participants, Gutka by 51, Zarda by 18, Betel Quid by 4, Pan by 19, and Pan Masala by 63.

ALCOHOL CONSUMPTION – Participants were also interviewed about their regular alcohol consumption. 65 participants responded about this habit of theirs.

C) KNOWLEDGE- AWARENESS

Out of the total participants, 95.5% (191/200) used to clean their teeth daily. 62.8% (120/191) used to clean their teeth with a toothbrush and toothpaste, 17% (33/191) by neem twigs, 14% (27/191) by a tooth powder, 3.6% (07/191) by charcoal and 2% (04/191) participants uses other methods like gel to clean their teeth. Only 35% (70/200) of the participants were aware that a mouth sore is related to an oral cancer, and only 38.5% (77/200) participants knew about the signs and symptoms of the same. Only 23% (46/200) received some sort of warning or an advice from a healthcare professional regarding oral cancer, and 9.5% (19/200) had a family history of oral cancer. It was seen from the study that 65% (130/200) participants consumed low amount of fruits and vegetables (less than 5 servings per day). Consumption of very hot beverages regularly was seen in 38% (76/200) of the participants, while 64.5% (129/200) of the participants were frequently exposed to sun rays. Having an ill - fitting

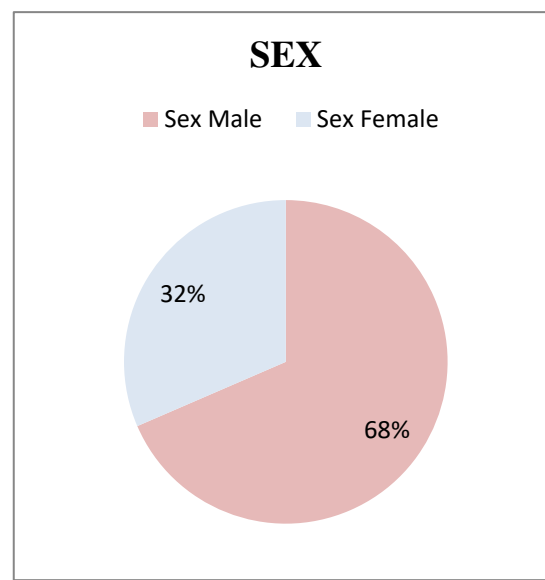
denture or any sharpened object constantly hurting in the mouth was seen in 14% (28/200) of the participants.

It was seen from the study that only 31.5% (63/200) believed that regular consumption of alcohol is a risk factor of oral cancer, while 25% (50/200) had no idea about the fact that regular consumption of alcohol can be a risk factor of oral cancer. Similarly, considering tobacco as a risk factor was seen in 72.5% (145/200), while 11% (22/200) did not know about the fact that regular consumption of tobacco can be a risk factor of oral cancer.

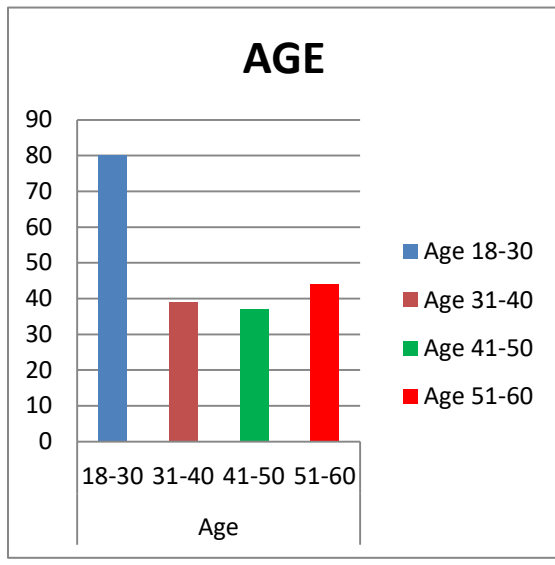
D) PERCEPTION OF PARTICIPANTS TOWARDS ORAL CANCER

Tobacco is a harmful substance and should be strictly banned from the country to protect the lives of the citizens of the country. But when the participants of the study were asked about their perception towards banning tobacco from the country, only 38% (76/200) had the belief that it should be banned from the country.

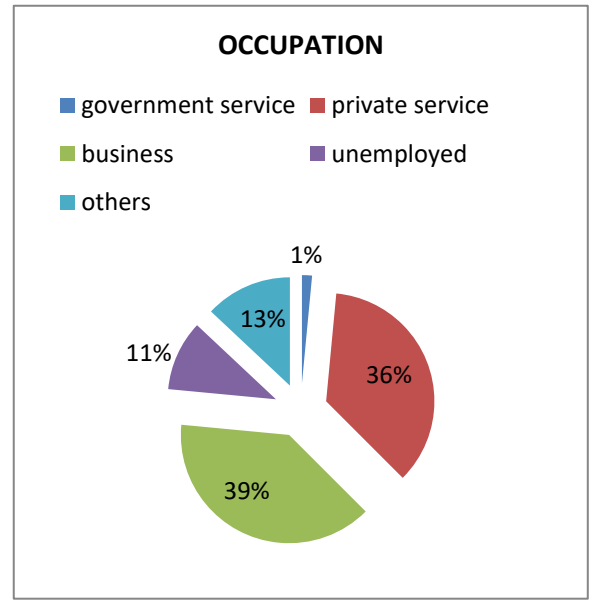
GRAPH 1 : Males were more in number than females



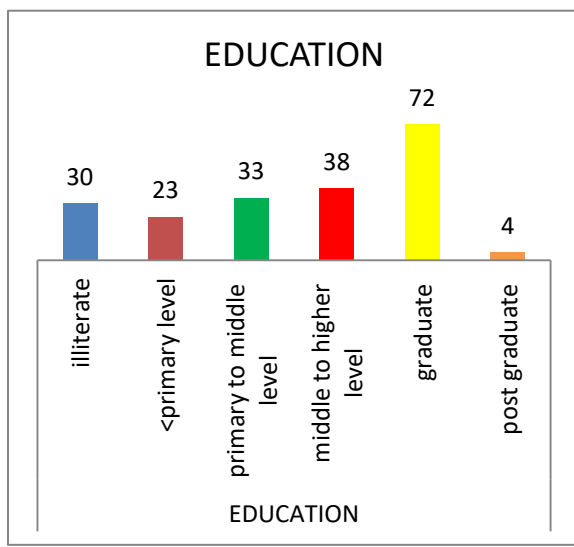
GRAPH 2 : People with age group of 18 - 30 were more in number.



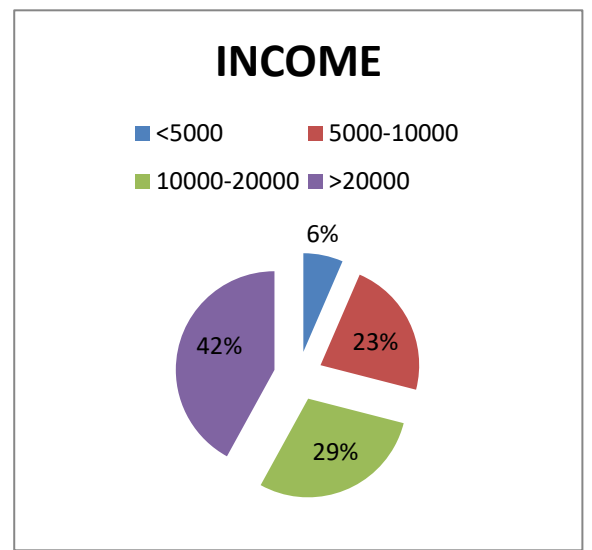
GRAPH 4 :Maximum people are into business followed by private jobs as per occupation.



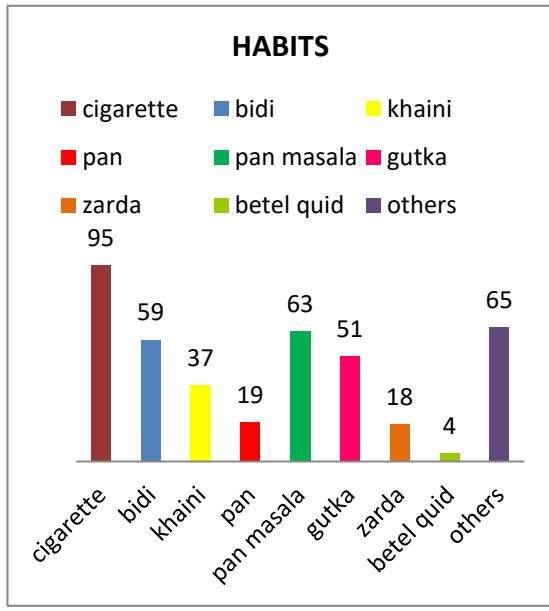
GRAPH 3 : Maximum people have completed their graduation.



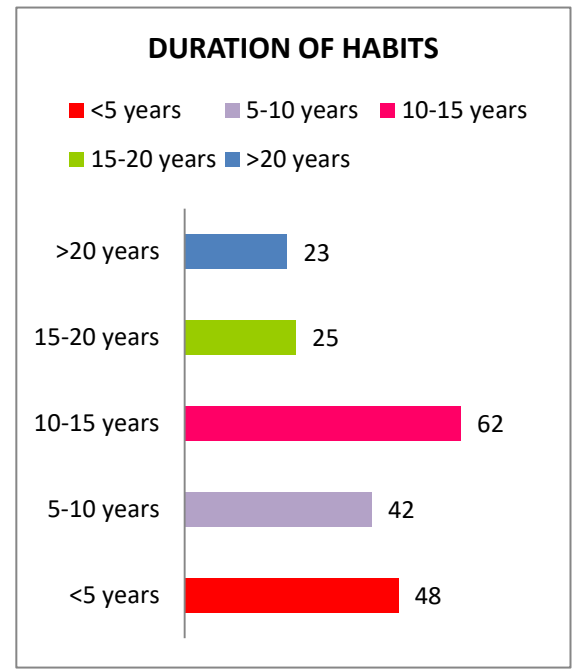
GRAPH 5: Maximum people earn more than Rs 20000 per month.



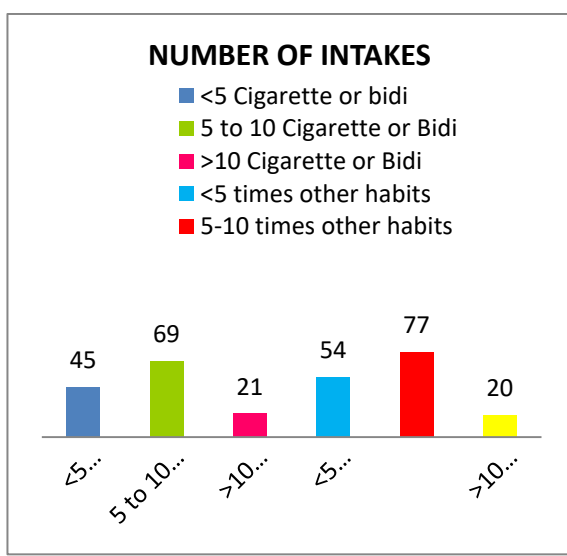
GRAPH 6: Maximum people have the habit of smoking cigarette followed by pan masala, alcohol and gutka.



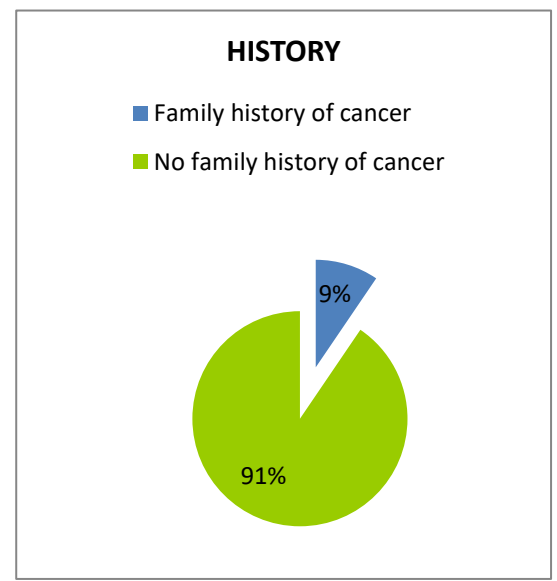
GRAPH 8: Maximum people have consumed tobacco for 10 to 15 years.



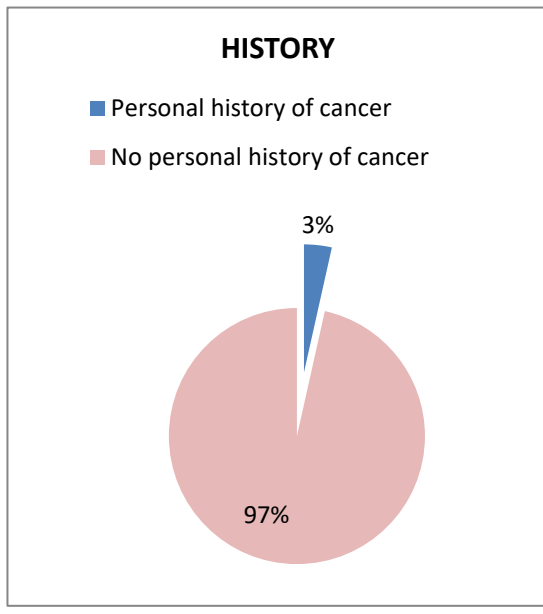
GRAPH 7: Maximum people take 5 to 10 times of smokeless tobacco/alcohol in a day followed by 5 to 10 times of cigarette/bidi in a day.



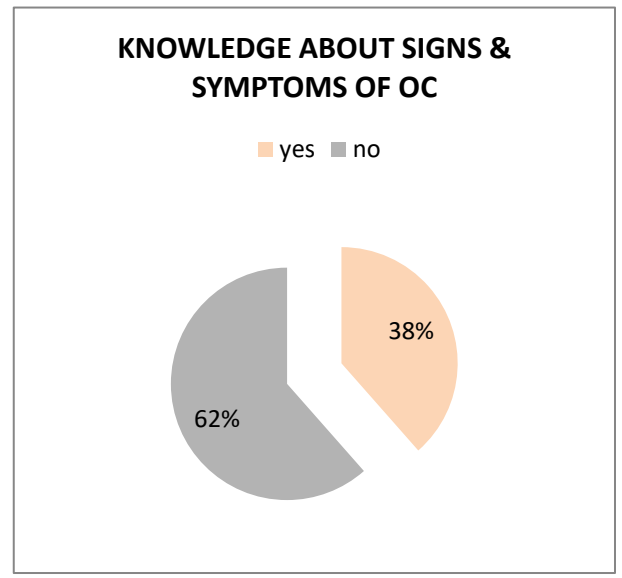
GRAPH 9: Maximum people have no family history of cancer.



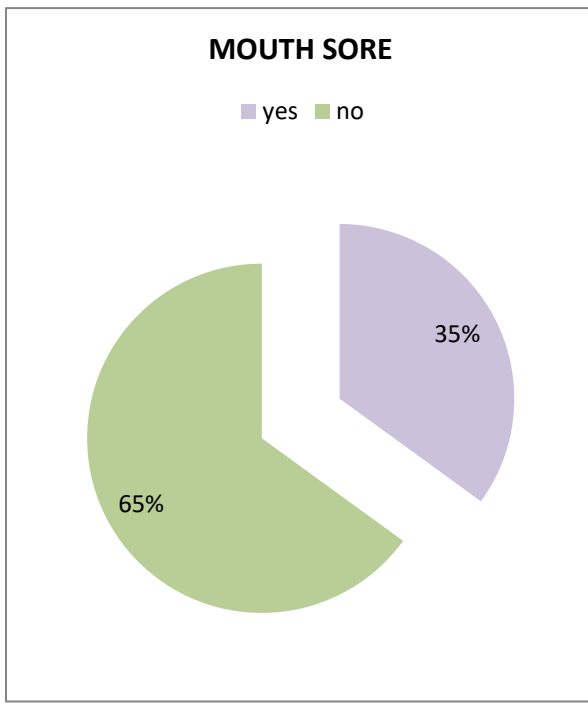
GRAPH 10: Maximum people have no personal history of cancer.



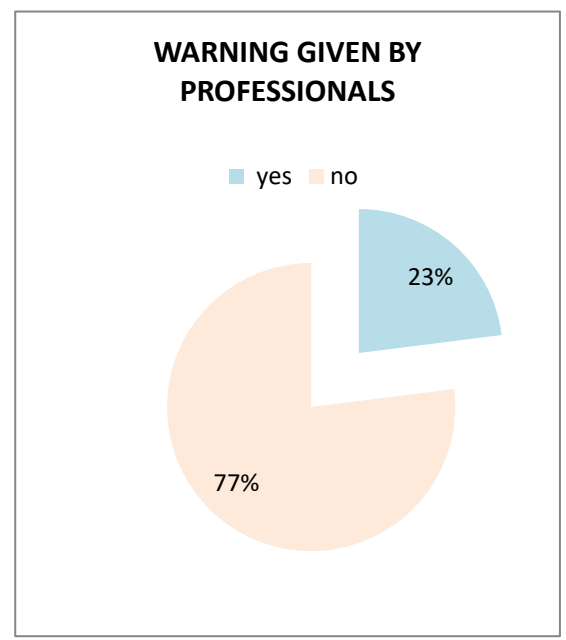
GRAPH 12 :Maximum people are not aware of the signs and symptoms of oral cancer.



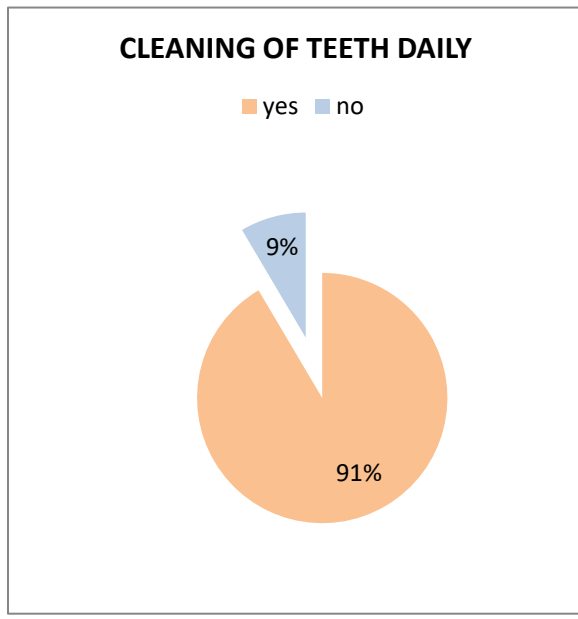
GRAPH 11: Maximum people do not get mouth sores on regular basis.



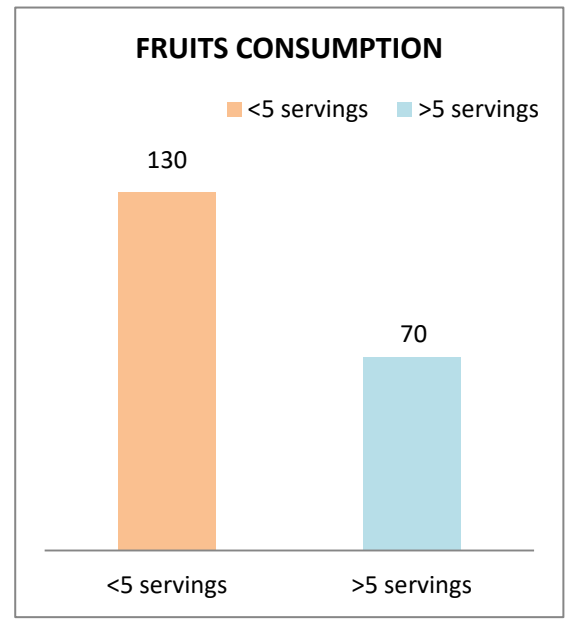
GRAPH 13 :Maximum people are never warned by their healthcare professionals about the adverse effects of the personal habits.



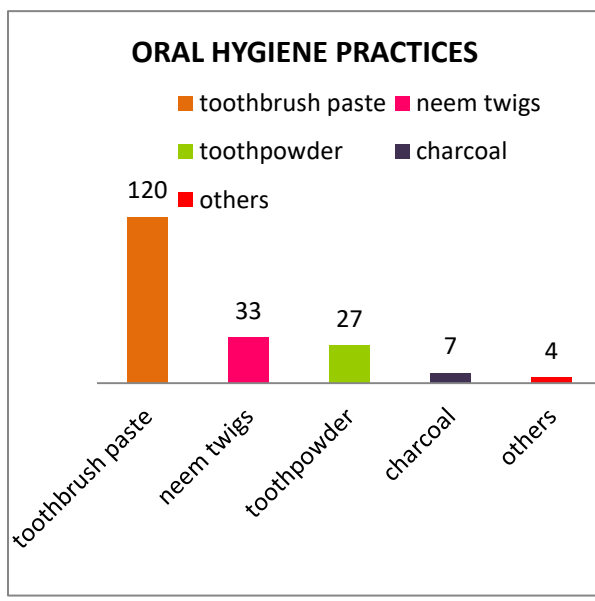
GRAPH 14 :Maximum people do clean their teeth daily.



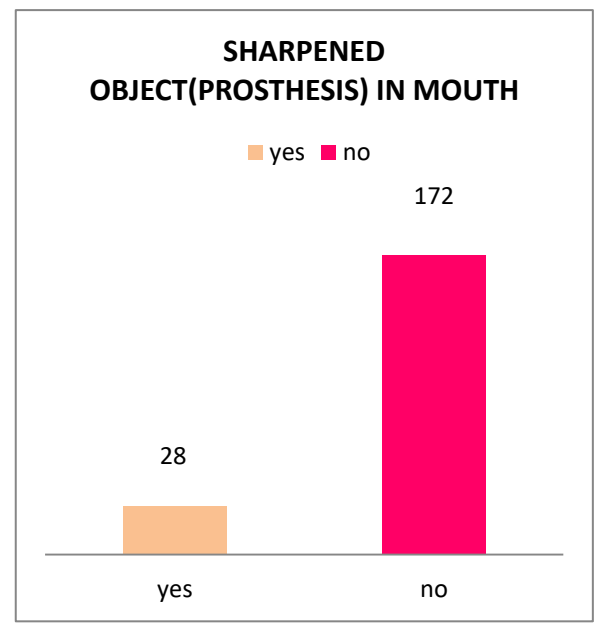
GRAPH 16 :Maximum people take less than 5 servings of fruits.



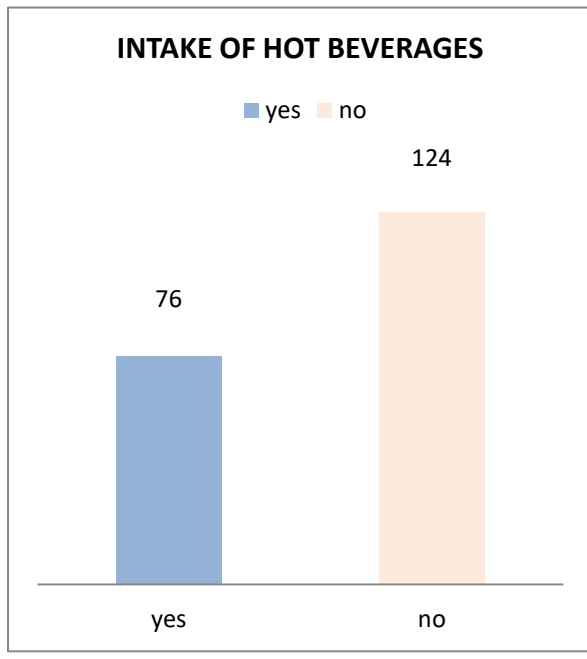
GRAPH 15 : Maximum people use toothbrush and paste to clean their teeth followed by neem twigs and tooth powder.



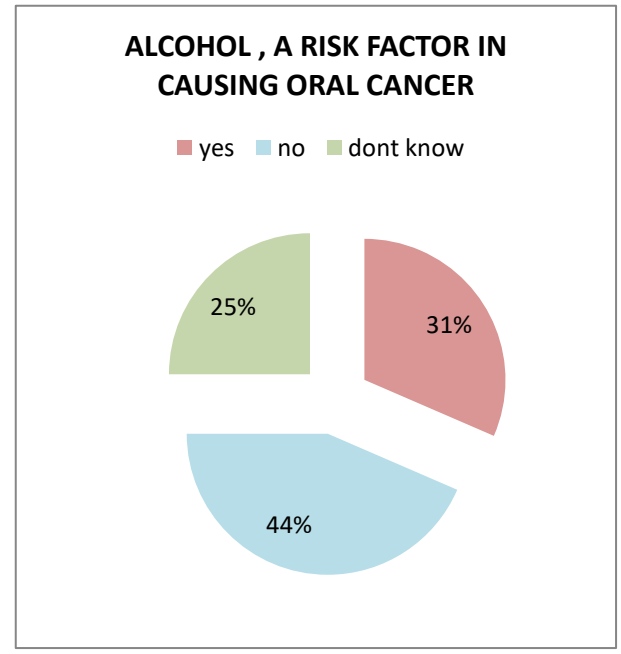
GRAPH 17: Maximum people have no prosthesis in mouth.



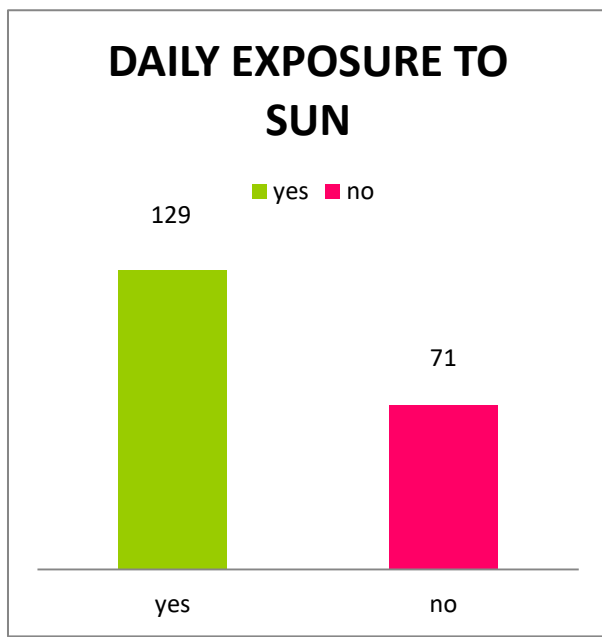
GRAPH 18: Maximum people do not take hot beverages regularly.



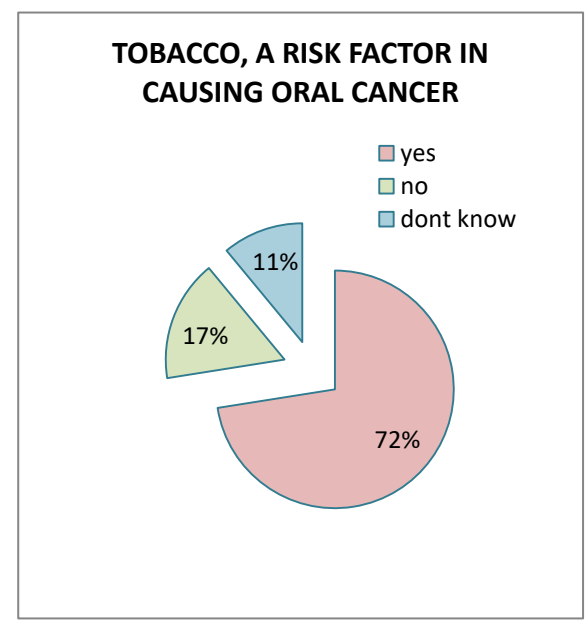
GRAPH 20: Maximum people think that alcohol is not a risk factor in causing oral cancer.



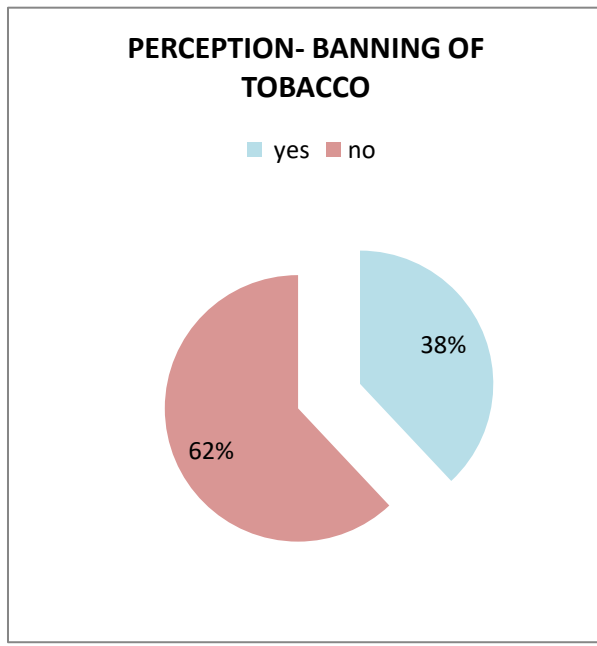
GRAPH 19: Maximum people get exposed to sun regularly.



GRAPH 21: Maximum people think that tobacco is a risk factor in causing oral cancer.



GRAPH 22 : Maximum people do not agree on banning of tobacco.



The data collected in the present study showed that the participants were aware of the tobacco being a key risk factor of oral cancer, but the knowledge surrounding other associated risk factors including alcohol was less known to them. Importantly, patients reported low rates of counselling by the healthcare professionals regarding the risk of oral cancer. Participants had high knowledge about additional risk factors like cleaning of teeth daily, not to consume hot beverages regularly, eating more than 5 servings of fruits. Maximum participants were of the opinion of not to ban the tobacco from the country. They lacked knowledge about the frequent exposure to sun, which is an additional risk factor that causes oral cancer.

Findings from our study believe that the participants who lack knowledgeability and are

generally unaware of the risk factors. Studies indicate that there is a definite link between the use of tobacco products and the development of oral cancer. Tobacco products, heavy use of alcohol and particularly the combined use of both have been implicated as the main cause of oral cancer. A typical high risk profile for oral cancer is male, over age 18 who uses tobacco and alcohol. However the male female ratio has dropped from 6 to 1 in 1950 to about 2 to 1 at present. About 95 percent of all oral cancers occur in persons over 40 years of age. The average age at the time of diagnosis is about 60. For preventive purposes, it is significant that oral cancer is largely a lifestyle disease, meaning the majority of cases are related to tobacco and alcohol use. This usage can be affected by proper education, counseling and treatment.

In our study representing 200 samples, we could investigate the potential link between the use of tobacco and oral cancer. There was a significant positive and significant association of cigarette smoking and 18-30 age group people (correlation 0.74, $p=0.000003$), cigarette smoking and males (correlation 0.88, $p=0.00005$), smokeless tobacco (khaini) and females (correlation 0.62, $p=0.000002$).

3. CONCLUSIONS

Within the limitations of the study due to the low percentage of responses, we can conclude that, among the studied population, males were more into smoking and females into smokeless tobacco. Many respondents have substantial knowledge about the harmful effects of tobacco but due to their perceived psychological and emotional dependency, they remain addicted and were

against the idea of banning tobacco from the country. On the other side, they did not even express anxiety, concern or worry when we shared the necessary information about oral cancer. Hence, it confirms the need for an integrated planning and engagement of all authorities and professionals involved, such as doctors, dentists, nurses and the Ministry of Health. Their hands on engagement and targets should aim to provide better information on oral cancer to the public, as well as to their fellow professionals by proper health education and to introduce preventive screening for oral cancer during routine dental examinations. Otherwise ignorance and lack of information on this issue will continue and the negative effects on the health of citizens will increase.

The findings of the study cannot be generalized to all the people of the country, hence a further study on the knowledge of possible risk factors for oral cancer is advised.

LIMITATIONS :

This study had some limitations, such as:

- Since it was focused on quantitative assessment of the knowledge, awareness, lifestyle behaviors and perception of patients in context to oral cancer, the questionnaire was limited to face and content validity.
- The information provided by the participants were self – reported and the questionnaire that was formed was dichotomous (although help was given to those participants who were illiterate), and so the ability to extract more information from the participants was limited.
- In the “perception” part of the questionnaire, only the perception regarding the ban of tobacco was present, while the perception regarding the ban of alcohol was missing.

- The questionnaire also did not had the question on “if the participant had ever tried on quitting tobacco and tobacco products and alcohol consumption due to the fear of oral cancer”.

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BIOGRAPHIES



-I am a dentist by profession, with a MPH degree. I have recently completed my post graduation. Currently I am working in a clinic, and seeking good research projects in the field.