

A Cross-Sectional Study to Evaluate the Knowledge, Attitude And Practices About Smoking and Smokeless Tobacco (SLT) Products Being Major Risk Factors for Developing Oral Cancer, in the Population of Raigad District

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Abstract

Background & Objectives: Tobacco use, both smoking and smokeless, is a well-established risk factor for oral cancer. This study assesses the knowledge, attitude, and practices (KAP) related to tobacco use and its link to oral cancer among the population of Raigad district.

Methods: A cross-sectional study was conducted from March 1 to March 30, 2025, across rural health centers in Raigad district. A structured questionnaire was administered to 198 individuals aged 18 years and above. Informed consent was obtained.

Results: Among 198 participants, 70.7% were males, and 61% were under 50 years. While 67.2% were aware of the link between tobacco and lung/esophageal cancer, only 44.9% recognized its association with oral cancer. Friends/family (61.1%) and television (59.2%) were the major information sources, with only 33.8% citing health professionals. Tobacco chewing was reported by 46%, smoking by 36.9%, and alcohol use by 26.3% 41.1% attempted quitting; however, stress (49.2%) and withdrawal symptoms (44.6%) were major relapse causes.

Conclusion: There exists a significant knowledge gap regarding the role of tobacco in oral cancer causation.. Awareness strategies targeting rural and underserved populations are crucial to reducing oral cancer burden.

Aim:

A cross-sectional study to evaluate the knowledge, attitude and practices about smoking and smokeless tobacco (SLT) products being major risk factors for developing oral cancer, in the population of Raigad district.

Objectives:

1. To assess the knowledge about the ill effects of smoking tobacco and consuming SLT products.
2. To determine the attitude of the participants regarding willingness towards tobacco cessation.
3. To analyze the tobacco consumption practices among the target population.
4. To find out the need to increase awareness regarding oral cancer prevention.

Introduction:

Tobacco use, in all forms, is a major risk factor for oral cancers due to exposure to carcinogenic chemicals. Cigarettes, the most common form of tobacco consumption, causes about 90% of all lung cancers, according to the American Lung Association. Smokers are also at a 10 times higher risk for oral cancer compared to non-smokers.[1] Chewing is another form of tobacco consumption. It may be a smokeless tobacco product but harmful chemicals including nicotine are ingested. More than 28 cancer-causing chemicals have been found in smokeless tobacco. [1] Oral cancer is the most common cancer in India amongst men (11.28% of all cancers), fifth most frequently occurring cancer amongst women (4.3% of all cancers) and the third most frequently occurring cancer in India amongst both men and women [2]. Most common site for oral cancer in India, is buccal mucosa, specifically buccogingival sulcus. Around 80% of oral cancers are directly attributable to tobacco use [2]

To promote better educational strategies regarding ill-effects of tobacco and to prevent oral cancers, it is crucial to identify the most significant knowledge gaps among the general public.

Materials & Methodology:

- A cross-sectional survey was conducted in some parts of Raigad district. This entailed asking the patients to fill up a detailed questionnaire of structured questions prepared
- Prior informed consent was obtained from the selected participants.
- A detailed history was taken for any type of substance use from the participants of the study using the questionnaire, to ascertain the attitude and practices about tobacco consumption predisposing to oral cancer.
- **Study Duration:** 1st March 25 to 30th March, 25
- **Study Design:** A cross-sectional study
- **Study Area:** Urban and Rural health care centre of field practicing area District: Raigad.
- **Sample Size:** 198 participants
- **Sample Population:** Individuals above 18 years of age resident of Raigad district.
- **Sampling technique:** Subject was selected with convenience sampling.
- The selection was based on the following inclusion and exclusion criteria:-

Inclusion criteria:

- Age : Apparently healthy individuals who are 18 years and older.
- Gender : Both male and female individuals would be included.
- The individual should have been a resident of Raigad district for a minimum of 6 months.
- The participant must be able to understand and willing to give his/her informed consent to be a part of the study.
- The individuals visiting the public health centers as patients would be included in the study.

Exclusion criteria:

- Individuals who are less than 18 years of age.
- Individuals who have not been residents of Raigad district for a minimum of 6 months.
- Patients who have been already diagnosed with oral cancer or other oral premalignant disorders like leukoplakia, erythroplakia, oral lichen planus, oral submucous fibrosis, etc, would be excluded.
- Patients with previous history of chemotherapy and/or radiotherapy taken for any head and neck

cancers, would be excluded.

- Individuals with a history of active tuberculosis or any other concomitant physical or mental disability precluding ability to comply with the study protocol requirements, would be excluded.
- Individuals who are unwilling to provide their informed consent to be a part of the study would be excluded.
- The responses obtained from the questionnaire were analyzed to determine the correlation between the consumption of smoke and smokeless tobacco, in the population of Raigad district.
- **Data Collection:** The data was collected by questionnaire and interview method from the target population who were approached at Urban and Rural health care centre of field practicing area District: Raigad after taking their informed verbal consent.
- **Ethical clearance:** The study process did not involve any harm to participants. Patients were enrolled after taking their informed verbal consent. The privacy of the patients was ensured during the entire process of data collection and confidentiality of the records was maintained.

Results:

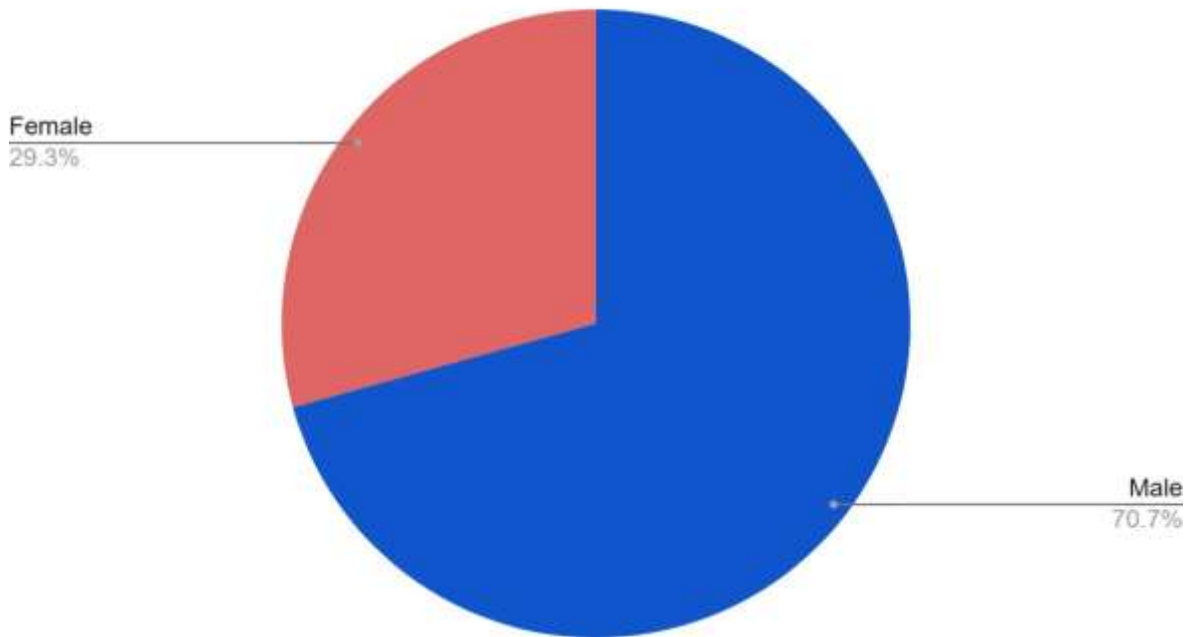
1. Sociodemographic Distribution AGE DISTRIBUTION :

AGE (in years)	MALES	FEMALES	TOTAL	%
18 – 30	25	10	35	17.67
31 – 40	34	8	42	21.21
41 – 50	29	15	44	22.22
51 – 60	26	9	35	17.67
61 – 70	19	12	31	15.65
71 – 75	7	4	11	5.55
TOTAL	140	58	198	100

EDUCATION DISTRIBUTION :

EDUCATION	Male	Female	No of Participants	%
PG	5	1	6	3%
GRADUATE	29	8	37	18.7%
SECONDARY	81	27	108	54.6%
PRIMARY	15	10	25	12.6%
ILLITERATE	10	12	22	11.1%
TOTAL	140	58	198	100%

GENDER DISTRIBUTION :
Gender Distribution



Results of demographic details:

1. In about 198 responses collected, most of the people belonged to age upto 50 years. About 61%, that is, 121 patients are less than 50 years old.
2. 29.3% were females and 70.7% were males. That is 58 were female and 140 were male.
3. 12.6% are primary educated. 54.6% are educated till secondary . 18.7% are graduates. 3% are post graduates. 11.1% are illiterate.

KNOWLEDGE ABOUT ILL EFFECTS OF TOBACCO CONSUMPTION

	Males	Female	Total	Percentage
1.What are the ill effects of consuming tobacco?				
• Oral Cancer	65	24	89	44.9%
• Lung/ Oesophageal Cancer	99	34	133	67.2%
• Heart Attack	44	17	61	30.8%
• Addiction Related Problems	88	34	122	61.6%
• Dental Problems	1	0	1	0.5%
• Fights at home	0	1	1	0.5%
• Don't know	0	1	1	0.5%
2. How do you know about the ill effects of tobacco				

consumption?				
• Internet	59	15	74	37.4%
• Newspaper	57	14	71	35.9%
• Television	86	31	117	59.2%
• Health Camps/ Professional	46	21	67	33.8%
• Friends & Family	86	36	122	61.1%
• Not aware	0	2	2	2%
3. Have you heard about Oral Cancer?				
• Yes	93	33	126	63.6%
• No	47	25	72	36.4%
4. Do you know anybody who has been diagnosed with oral cancer?				
• Yes	21	6	27	13.6%
• No	119	52	171	86.4%

5. Do you think drinking alcohol potentiates tobacco's predisposition to cause oral cancer?				
• Yes	40	16	56	28.3%
• No	54	17	71	35.9%
• May Be	46	25	71	35.9%
6. Which of the following tobacco cessation treatments do you know about or tried?				
• Nicotine Patches	40	12	52	53.6%
• Nicotine gums / Lozenges	62	13	75	78.3%
• Nicotine inhaler / spray	6	5	11	11.3%
• Bupropion	6	4	10	10.3%
• Varenicline	7	2	9	9.3%
• None	1	0	1	1%

Results of knowledge assessment:

- 67.2% know that tobacco can cause lung or esophageal cancer. But only 44.9% know that tobacco also causes oral cancer.
- 30.8% agree that tobacco consumption can lead to heart attack.
- 61.6% also mentioned addiction related problems as an ill-effect of tobacco consumption.
- Other ill-effects mentioned were dental problems and fights at home.
- 0.5% did not know about any ill-effects of tobacco consumption.
- For 61.1% friends and family were the source of information regarding ill-effects of tobacco consumption.
- Television was the second major source of information with 59.2%
- Only 33.8% (which is the least) have obtained information via trusted sources like health camps/ health professionals.
- 35.9% had newspapers and 37.4% had the internet as their source of information.
- 2% were not sure about their source of information.
- 63.6% had heard about oral cancer.
- 36.4% had never heard of oral cancer.
- 13.6% also knew someone diagnosed with oral cancer.
- Only 28.3% agreed that alcohol potentiates the tobacco's predisposition to causing oral cancer.
- 35.9% disagreed that alcohol consumption affects risk of oral cancer and 35.9% were not sure of its effects.
- Majority participants have awareness about nicotine gums/ lozenges (78.3%) and nicotine patches (53.6%).
- 10.3 % and 9.3 % have awareness about bupropion and varenicline respectively for tobacco de-addiction.
- 11.3% know about nicotine inhalers/ spray.
- 1% do not know about any available treatments for tobacco cessation.

ATTITUDE REGARDING TOBACCO CESSATION

	Males	Female	Total	Percentage
1. Why did you start consuming tobacco?				
• For fun	27	6	33	23.6%
• Under peer pressure/ Friend's influence	49	5	54	38.6%
• Liked the taste	14	16	30	21.4%
• To cope with work related	16	5	21	15%
• Financial stress at home	1	0	1	0.7%
• Other	1	0	1	0.7%
2. Have you tried quitting tobacco?				
• Yes	48	10	58	41.1%
• No	62	21	83	58.9%
3. For how long have you been able to go without consuming tobacco?				

• <6 months	30	8	38	62.2%
• 6-12 months	10	0	10	16.3%
• More than a year	11	2	13	21.5%
4. When you quit tobacco what was the reason you took it up again?				
• Stress	25	7	32	49.2%
• Withdrawal symptoms	24	5	29	44.6%
• Boredom	17	4	21	32.3%
• Urge to smoke	22	3	25	38.5%
• A crisis	5	2	7	10.8%
5. Do you still wish to quit tobacco?				
• Yes	56	12	68	52.7%
• No	20	8	28	21.7%
• May be	25	8	33	25.6%

Results of attitude assessment:

- 38.6% started consuming tobacco under peer pressure which was the most common reason.
- 21.4% started because they like the taste and 23.6% started consuming tobacco for fun.
- 15% consume tobacco for coping with work related stress.
- Some also started consuming tobacco for reasons like stress at home and pain relief from toothache.
- 41.1% (58 participants) have tried to quit tobacco and 58.9% did not try to quit tobacco.
- 21.5% were able to quit tobacco for more than a year.
- 62.2% were able to stay away from tobacco for less than 6 months.
- 16.3% were able to quit tobacco for 6-12 months.
- 49.2% failed to quit tobacco due to stress whereas 44.6% failed due to withdrawal symptoms.
- 10.8% started consuming tobacco again due to a crisis in life.
- 38.5% could not quit tobacco due to urge to smoke
- 32.3% started smoking again due to boredom
- Only 52.7% still wish to quit tobacco.
- 21.7% denied wanting to quit tobacco consumption and 25.6% were not sure.

TOBACCO CONSUMPTION PRACTICES

	Male	Female	Total	Percentage
1. Do you have any of the following addictions?				
• Tobacco chewing	63	28	91	46%
• Tobacco smoking	65	8	73	36.9%
• Alcohol	49	3	52	26.3%
• None	26	25	51	25.8%

2.If you smoke tobacco in what form do you smoke it?				
• Cigarette	47	2	49	65.3%
• Bididi	30	5	35	46.7%
• Hookah	14	2	16	21.3%
3.If you chew tobacco in what form do you chew it?				
• Mava	10	0	10	10.9%
• Mishri	10	10	20	21.7%
• Betel quid with tobacco	26	13	39	42.4%
• Khaini	37	5	42	45.7%
4. Since when have you been consuming tobacco?				
• <5yr	17	6	23	16.4%
• 5-10yr	26	6	32	22.9%
• 10-20	32	9	41	29.3%
• >20yr	33	11	44	31.4%
5. How many times a day do you consume tobacco?				
• <2	13	10	23	17.8%
• 2-5	56	20	76	58.9%
• 5-8	24	2	26	20.2%
• >8	4	0	4	3.1%
6. How many packets of tobacco do you consume per day?.				
• <2	39	15	54	41.9
• 2-5	47	14	61	47.3
• 5-8	10	1	11	8.5
• >8	3	0	3	2.3
7. If you chew tobacco for how long do you keep it in your mouth?				
• <5min	18	10	28	29.8%
• 5-10 min	32	13	45	47.9%
• 10-20 min	12	3	15	16%
• >20 min	3	3	6	6.4%

8. How old were you when you first consumed tobacco for the first time?				
• <18	16	8	24	18.3%
• 18 and above	85	22	107	81.7%
9. If you chew tobacco, what do you do after chewing it?				
• Spit it out	47	19	66	73.3%
• Swallow it	9	8	17	18.9%
• Both	6	1	7	7.8%
10. Have you ever been exposed to secondhand smoke? If yes, how frequently have you been exposed?				
• Rarely	20	18	38	19.2%
• Sometimes	64	27	91	46%
• Quite often	45	12	57	28.8%
• Always	11	1	12	6.1%

Results of practices of tobacco consumption:

- 46% chew tobacco products and 36.9 % smoke tobacco.
- 26.3% also consume alcohol.
- 25.8% don't have any addictions
- 65.3% tobacco smokers smoke cigarettes.
- 46.7% smoke bidi and 21.3% smoke hookah.
- Khaini and Betel quid tobacco is chewed by 45.7% and 42.4% participants respectively.
- Other forms of tobacco chewing include mishri (21.7%) and mava (10.9%).
- 31.4% of the population is consume tobacco for more than 20 years.
- 29.3% have been consuming tobacco for 10-20 years and 22.9% have been consuming since 5-10 years.
- 16.4 % have been consuming tobacco for less than 5 years.
- Majority (58.9%) consume tobacco 2-5 times a day.
- 23.3% consume tobacco more than 5 times per day.
- 17.8% consume tobacco less than 2 times a day.
- 47.3% consume 2-5 packets of tobacco per day.
- 2.3% consume more than 8 packets of tobacco per day.
- While chewing tobacco, 47.9% keep tobacco in their mouth for 5-10 mins.
- 29.8% keep tobacco in their mouth for less than 5 mins and 6.4% keep it for more than 20 mins.
- 16% keep tobacco in their mouth for 10-20 mins.
- 18.3% were less than 18 years of age when they first consumed tobacco.
- 81.7% were 18 or above when they first consumed tobacco.

21. 73.3% spit out tobacco after chewing it.
22. 18.9% swallow it and 7.8% do both.
23. 46% participants are exposed to secondhand smoke sometimes, 28.8% are exposed quite often.
24. 6.1% are always exposed to secondhand smoke and 19.2% are rarely exposed to secondhand smoke.

DISCUSSION:

- This study assessed the knowledge, attitude, and practices (KAP) related to smoking and smokeless tobacco (SLT) use in the Raigad district, highlighting significant gaps in awareness and high prevalence of tobacco use.
- Only **44.9%** of participants were aware that tobacco can cause oral cancer, which is much lower than the **91.1%** reported by *Talib et al. (2018)* and **94%** by *Tubachi et al. (2018)*. However, it is comparable to *Crastha et al. (2018)*, who found only **37.2%** awareness in a rural adult population.
- In our study, the main sources of information were friends/family (**61.1%**) and television (**59.2%**), while only **33.8%** cited health professionals. *Singh et al. (2019)* and *Talib et al.* also found television to be a major source of tobacco-related information, but structured health education remains limited.
- Tobacco use was highly prevalent, with **46%** chewing and **36.9%** smoking—far higher than the **17–18%** reported by *Tubachi et al.* and *Singh et al.* among adolescents. Moreover, **31.4%** of participants in our study had used tobacco for over 20 years, showing deep-rooted habits.
- Although **41.1%** had tried quitting and **52.7%** still wished to quit, many relapsed due to stress (**49.2%**) and withdrawal (**44.6%**), echoing findings by *Crastha et al.* who also noted poor professional support as a barrier.
- Awareness about nicotine gums (**78.3%**) and patches (**53.6%**) was relatively high, though fewer knew about pharmacological options like bupropion or varenicline—an area largely unreported in the comparison studies.

SUMMARY:

- A cross-sectional survey was conducted from March 1 to March 30, 2025, under the guidance of Dr. Shalini Ojha. The study involved 198 participants (aged 18–75) from both urban and rural health centers in Raigad district, selected via convenience sampling. Data were collected using a structured questionnaire, ensuring informed consent and confidentiality.
- 70.7% of participants were male, and 29.3% were female.
- 61% of participants were below 50 years of age.
- 54.6% had secondary education; 11.1% were illiterate.
- 67.2% knew tobacco can cause lung or esophageal cancer, but only 44.9% were aware of its link to oral cancer.
- 63.6% had heard of oral cancer; only 13.6% knew someone diagnosed.
- Main sources of information: friends/family (61.1%) and TV (59.2%). Only 33.8% had information from health professionals.
- 78.3% were aware of nicotine gums; 53.6% knew about nicotine patches. Very few knew about bupropion or varenicline.
- 38.6% started tobacco due to peer pressure, 23.6% for fun, and 15% due to work stress.
- 41.1% had attempted to quit tobacco; among them, most relapsed due to stress (49.2%) or withdrawal

symptoms (44.6%).

- 52.7% still expressed a desire to quit; 21.7% did not want to quit, and 25.6% were unsure.
- 46% chewed tobacco; 36.9% smoked it; 26.3% consumed alcohol.
- Cigarettes (65.3%) and bidis (46.7%) were the most common smoking forms.
- Khaini (45.7%) and betel quid with tobacco (42.4%) were the most used chewable forms.
- 31.4% had used tobacco for over 20 years; 58.9% used it 2–5 times daily.
- 73.3% spat out chewed tobacco; 18.9% swallowed it.
- 46% were occasionally exposed to secondhand smoke; 6.1% were exposed constantly.

CONCLUSION:

- Looking at the study made with 198 participants, it is concluded that many of the participants are aware that tobacco has tremendous harmful effects yet they are not able to quit tobacco completely.
- Most of the participants are unaware of the fact that tobacco has a role in causing oral cancer.
- Participants who wish to quit tobacco are facing relapses due to reasons like withdrawal and stress.
- Awareness regarding methods available for de-addiction of tobacco needs to be increased.
- A huge percentage is also exposed to second-hand smoke.
- Even today for successful prevention of oral cancer due to tobacco, a multisectoral collaborative approach is needed with awareness spreading into the rural areas and low socioeconomic groups.

RECOMMENDATIONS:

- The result presented in the study should assist governmental and non-governmental entities in community improving oral cancer prevention and control programs including community education and awareness campaigns on the importance of quitting tobacco, good attitudes and following good practices in the community.
- The findings also emphasises the need to provide tobacco cessation and oral cancer related knowledge to the population via trusted sources like health camps and professionals.
- There should be awareness programs visually, skits, role plays or information banners to promote information awareness in the RHTC and UHTC, also in schools among school children and their parents.
- National Oral Cancer Month is observed in April every year to raise awareness about disease prevention and about the correct practices to prevent its complications and death.
- The slogan for National Oral Cancer month is “Check your mouth, Save your life.”

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