



Knowledge of Lifestyle Risk Factors for OPMDs among Young Adult

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ABSTRACT:

Background: Oral cancer is among the most common cancers worldwide and the 3rd most prevalent in India. Oral Potentially Malignant Disorders (OPMDs) such as submucous fibrosis, leukoplakia, erythroplakia, and Oral lichen planus are precancerous lesions and are strongly associated with modifiable lifestyle factors including tobacco, alcohol, and areca nut use. Awareness among young adults is important, as lifestyle behaviors are often established during this stage.

Aim: To assess knowledge and awareness of lifestyle-related risk factors for OPMDs among young adults aged 17–30 years.

Methods: A cross-sectional study was conducted among 395 college students using a structured, self-administered questionnaire via Google Forms. The survey included demographic details, knowledge of OPMDs, awareness of risk factors, preventive attitudes, and behavioral practices. Data were analyzed using descriptive statistics and chi-square tests, with $p < 0.05$ considered significant.

Results: Most participants (75.7%) recognized that oral diseases can lead to cancer, but only 53.9% were aware of OPMDs, with knowledge significantly higher in older participants ($p = 0.000$). Awareness of symptoms was limited, with 73.9% reporting no observed signs. Although 80.8% acknowledged tobacco and betel nut as cancer risk factors, 35.4% reported current use. Health-seeking behavior was suboptimal, with 41% citing dentists as their primary information source, while barriers to dental visits included lack of time (44.1%), fear (28.1%), and cost (27.8%).

Conclusion: While general awareness of oral cancer was relatively high, knowledge of OPMDs and recognition of early warning signs among young adults was inadequate. Strengthened health

education, preventive dental initiatives, and targeted community-based programs are needed to increase awareness and behavior, thereby reducing the long-term prevalence of oral cancer

I. INTRODUCTION

Oral cancer ranks among the most frequently occurring cancers globally and is the 3rd common cancer in India [1,2]. Oral cancer is a malignant neoplasm [3], strongly associated with modifiable lifestyle factors, including tobacco use in both smoking and smokeless forms, alcohol intake, areca nut chewing, and inadequate dietary habits [4]. Oral malignancies are frequently preceded by clinically recognizable conditions known as Oral Potential Malignant Diseases (OPMDs) [5].

OPMDs are defined as “any oral mucosal abnormality that is associated with a statistically increased risk of developing oral cancer” [6]. OPMD, such as Oral submucous fibrosis, leukoplakia, erythroplakia, and Oral lichen planus, are closely linked with risk factors connected to lifestyle, including alcohol consumption, tobacco usage, areca nut use, and nutritional deficiencies [7]. Significantly lowering the incidence of oral cancer may depend on detection and proper treatment of OPMDs [7]. Research indicates that teenagers who use tobacco and alcohol excessively may be 48 times more likely to acquire mouth cancer [8]. Among younger age groups, OPMD is becoming more prevalent [9].

Young adults represent a crucial demographic, as this transitional stage of life is when lifestyle behaviors are often established and reinforced [10]. Assessing young adults' comprehension of OPMDs and their associated lifestyle risks is essential for designing effective prevention strategies and implementing impactful public health programs [7]. This study aims to



examine awareness of lifestyle-related risk factors for OPMDs among young individuals aged 17-30 years, and to identify areas that require targeted health education

II. MATERIALS AND METHODS

The aim of this cross-sectional study was to assess young adults, lifestyle-related risk factors for OPMDs, including their knowledge, attitudes, and actions. The study population consisted of 395 students aged between 17 and 30 years, who were randomly selected from various colleges and universities to ensure a diverse representation of the young adult population. A structured questionnaire was developed in English. The questionnaire consisted of multiple sections covering demographic details, knowledge about OPMDs, awareness of risk factors, attitude towards preventive practices, and behavioral habits. The final questionnaire was distributed using Google Forms, allowing for easy online access and collection of responses. Data was gathered over the course of four weeks., during which reminders were sent to ensure maximum participation and response rate. All responses were automatically stored in a secure digital database for analysis. For data analysis, responses were downloaded from Google Forms and transferred into Microsoft Excel. For the demographic data, descriptive statistics such as frequencies and percentages were computed and responses related to knowledge and awareness of OPMDs. To evaluate relationships between knowledge levels of different age groups, inferential techniques like chi-square tests were used. Statistical analysis was performed and a p-value of <0.05 was considered statistically significant.

QUESTIONS:

1. Do you know oral diseases can lead to cancer?
Yes
No
2. Do you know what is Oral Potentially Malignant disorders (OPMDs) are?
Yes
No
3. Which of the following symptoms you have seen so far in mouth ?
White patches
Red patches
Stiff mouth
don't seen any of these forms

4. Do you know these symptoms can lead to oral cancer if untreated ?

Yes
No
Not sure

5. Where did you learn about these symptoms?

Family / friends
Dentist / doctor
Tv / radio
Internet / social media
Never heard about it before

6. Do you think dental checkup can detect early signs of such disorders?

Yes
No
Not sure

7. Do you currently use any of the following types?

Tobacco (chewing)
Tobacco (smoking)
Alcohol
Beetal nut \ areca nut
None of the above

8. Are you aware that those types of tobacco can increase the risk of mouth cancer ?

Yes
No

9. Do you consume balanced diet including fruits and vegetables ?

Yes
No
Occasionally

10. Do you have long standing mouth problems ?(e.g : burning sensation , ulcers, difficulty in opening mouth)

Yes
No

11. Have you ever received any health education about tobacco or oral cancer ?

Yes
No

12. Do you experience any of the following symptoms currently or in the past 6 months?

White / red patches in mouth
Mouth ulcers for more than 2 weeks
Difficulty in opening mouth
Pain or burning while eating spicy food
None of these



13. If you have mouth problems , what you do first ?
 Wait and see if it goes away
 Use home remedies
 Visit a dentist
 Ask family / friends

Yes, I need help
 No , I don't want to quit
 I didn't use them

14. What do you think stops people from visiting a dentist regularly ?
 Cost
 Fear / anxiety
 Lack of time

15. If support was available , would you consier quitting tobacco or betel nut use ?
 Yes, Im ready to quit

III. RESULTS AND STATISTICAL ANALYSIS

Table 1(Demographic data)

A total of 395 participants aged 17–28 years were included and categorized into three age groups: 17–20 years (23.6%), 21–24 years (50.3%), and 25–28 years (26.1%). The study population included 236 males (59.8%) and 159 females (40.2%).

		FREQUENCY(N)	PERCENTAGE(%)
GENDER	FEMALE	159	40.2
	MALE	236	59.8
AGE GROUP	17- 20	93	23.6
	21 - 24	198	50.3
	25 - 28	103	26.1

Table 2 (Awareness and Knowledge)

Most participants (75.7%) were aware that oral diseases could lead to cancer, with no significant difference across age groups (p = 0.149). Awareness of OPMDs was reported by 53.9%, with a significant difference between age groups (p = 0.000), indicating older participants had better knowledge.

When asked about symptoms, 73.9% of participants reported not observing any signs, while 12.2% had noticed white patches. Knowledge that these symptoms could lead to oral cancer if untreated was observed in 55.2% of participants (p = 0.000), reflecting a significant association with age.

S.No	Questions	Responses	17-20 years n(%)	21-24 years n(%)	25-28 years n(%)	Total n (%)	p-value
1.	Do you know oral diseases can lead to cancer?	Yes	64(16.2)	150(38)	85(21.5)	299 (75.7)	0.149 (NS)
		No	31(7.9)	47(11.9)	18(4.6)	96 (24.3)	
2.	Do you know what is Oral Potentially Malignant disorders (OPMDs) are?	Yes	22(5.6)	123(31.1)	68(17.2)	213(53.9)	0.000*
		No	73(18.5)	74(18.7)	35(8.9)	182(46.1)	
3.	Which of the following symptoms you have seen so far in your mouth ?	don't seen any of these forms	82(20.8)	135(34.2)	75(19)	292(73.9)	0.050 (NS)
		Red patches	3(0.8)	16(4.1)	10(2.5)	29(7.3)	
		Stiff mouth	3(0.8)	15(3.8)	8(2)	26(6.6)	
		White patches	7(1.8)	31(7.8)	10(2.5)	48(12.2)	
4.	Do you know	Yes	33(8.4)	120(30.4)	65(16.5)	218(55.2)	0.000*



	these symptoms can lead to oral cancer if untreated ?	No	26(6.6)	32(8.1)	9(2.3)	67(17)	
		Not sure	36(9.1)	45(11.4)	29(7.3)	110(27.8)	

NS – Not significant, * - Statistically significant at p <0.05, Chi-Square Test

Table 3 (Source of information and preventive practices)

Participants primarily learned about oral disease symptoms from **dentists/doctors (41%)** and **internet/social media (22%)**, with a significant age-related difference (p = 0.000).

Regarding preventive practices, **70.4%** believed dental checkups could detect early signs of OPMDs, although this difference was not statistically significant (p = 0.093). This indicates moderate awareness about the role of routine dental examinations in early detection.

5.	Where did you learn about these symptoms?	Dentist / doctor	24(6.1)	86(21.8)	52(13.2)	162(41)	0.000*
		Family / friends	9(2.3)	33(8.4)	23(5.8)	65(16.5)	
		Internet / social media	25(6.3)	45(11.4)	17(4.3)	87(22)	
		Never heard about it before	34(8.6)	20(5.1)	8(2)	62(15.7)	
		Tv / radio	3(0.8)	13(3.3)	3(0.8)	19(4.8)	
6.	Do you think dental checkup can detect early signs of such disorders?	Yes	61(51.4)	143(36.2)	74(18.7)	278(70.4)	0.093 (NS)
		No	9(2.3)	26(6.6)	8(2)	43(10.9)	
		Not sure	25(6.3)	28(7.1)	21(5.3)	74(18.7)	

NS – Not significant, * - Statistically significant at p <0.05, Chi-Square Test

Table 4 (Lifestyle habits and Risk factors awareness)

Most participants (**64.6%**) reported not using tobacco, alcohol, or betel nut. Awareness of the increased risk of oral cancer due to tobacco or betel nut was high (**80.8%**) and significantly associated with age (p = 0.006).

Balanced diet consumption, including fruits and vegetables, was reported by **58%**, while **33.9%** consumed such a diet occasionally. There was no significant difference across age groups (p = 0.133).

7.	Do you currently use any of these following types ?	Alcohol	2(0.5)	21(5.3)	13(3.3)	36(9.1)	0.000*
		Alcohol, None of the above	1(0.3)	1(0.3)	2(0.5)	4(1)	
		Beetal nut \ areca nut	0(0)	4(1)	1(0.3)	5(1.3)	
		None of the above	85(21.5)	126(31.9)	44(11.1)	255(64.6)	
		Tobacco (chewing)	2(0.5)	13(3.3)	11(2.8)	26(6.6)	
		Tobacco (chewing), Alcohol	0(0)	2(0.5)	2(0.5)	4(1)	
		Tobacco (chewing),	0(0)	1(0.3)	0(0)	1(0.3)	



		None of the above					
		Tobacco (chewing), Tobacco (smoking), Alcohol	0(0)	1(0.3)	5(1.3)	6(1.5)	
		Tobacco (chewing), Tobacco (smoking), Alcohol, Beetal nut \ areca nut	0(0)	3(0.8)	2(0.5)	5(1.3)	
		Tobacco (chewing), Tobacco (smoking), Beetal nut \ areca nut	0(0)	2(0.5)	0(0)	2(0.5)	
		Tobacco (smoking)	3(0.8)	11(2.8)	6(1.5)	20(5.1)	
		Tobacco (smoking), Alcohol	2(0.5)	11(2.8)	14(3.5)	27(6.8)	
		Tobacco (smoking), Alcohol, Beetal nut \ areca nut	0(0)	1(0.3)	3(0.8)	4(1)	
8.	Are you aware that those types of tobacco can increase the risk of mouth cancer ?	Yes	66(16.7)	166(42)	87(22)	319(80.8)	0.006*
		No	29(7.3)	31(7.8)	16(4.1)	76(19.2)	
9.	Do you consume balanced diet including fruits and vegetables ?	Yes	51(12.9)	112(28.4)	66(16.7)	229(58)	0.133 (NS)
		No	4(1)	18(4.6)	10(2.5)	32(8.1)	
		Occasionally	40(10.1)	67(17)	27(6.8)	134(33.9)	

NS – Not significant, * - Statistically significant at $p < 0.05$, Chi-Square Test

Table 5 (Oral symptoms and Care seeking behaviour)

Long-standing oral problems were reported by **17.7%**, without significant age differences ($p = 0.077$). Most participants (**75.2%**)

did not experience oral symptoms in the past 6 months.

When experiencing oral problems, **58.5%** visited a dentist first, highlighting appropriate care-seeking behavior, which was significantly associated with age ($p = 0.023$).



10.	Do you have long standing mouth problems ?(eg : burning sensation , ulcers, difficulty in opening mouth)	Yes	10(2.5)	42(10.6)	18(4.6)	70(17.7)	0.077 (NS)
		No	85(21.5)	155(39.2)	85(21.5)	325(82.3)	
11.	Have your ever received any health education about tobacco or oral cancer ?	Yes	43(10.9)	114(28.9)	60(15.2)	217(54.9)	0.094 (NS)
		No	52(13.2)	83(21)	43(10)	178(45.1)	
12.	If you have mouth problems , what you do first ?	Ask family / friends	14(3.5)	19(4.8)	6(1.5)	39(9.9)	0.023*
		Use home remedies	17(4.3)	40(10.1)	10(2.5)	67(17)	
		Visit a dentist	53(13.4)	104(26.3)	74(18.7)	231(58.5)	
		Wait and see if it goes away	11(2.8)	34(8.6)	13(3.3)	58(14.7)	

NS – Not significant, * - Statistically significant at p <0.05, Chi-Square Test

Table 6 (Barriers to dental visit and tobacco cessation)

Barriers to regular dental visits included **lack of time (44.1%), fear/anxiety (28.1%), and cost (27.8%)**, with significant differences across age groups (p = 0.000).

Among participants who used tobacco or betel nut, **25.3%** were ready to quit and **8.6%** needed help, indicating willingness to adopt healthier habits. Most participants (**63.3%**) reported not using these substances at all, which was also significantly associated with age (p = 0.000).

13.	Do you experience any of the following symptoms currently or in the past 6 months?	Difficulty in opening mouth	0(0)	7(1.8)	3(0.8)	10(2.5)	0.118 (NS)
		Mouth ulcers for more than 2 weeks	5(1.3)	20(5.1)	16(4.1)	41(10.4)	
		None of these	81(20.5)	146(37)	70(17.5)	297(75.2)	
		Pain or burning while eating spicy food	5(1.3)	9(2.3)	8(2)	22(5.6)	
		White / red patches in mouth	4(1)	15(3.8)	6(1.5)	25(6.3)	
14.	what do you think about people stops	Cost	35(8.9)	55(13.9)	20(5.1)	110(27.8)	0.000*
		Fear / anxiety	35(8.9)	63(15.9)	13(3.3)	111(28.1)	



	from visiting a dentist regularly ?	Lack of time	25(6.3)	79(20)	70(17.7)	174(44.1)	
15.	If support was available , would you consider quitting tobacco or betel nut use ?	I didn't use them	82(20.8)	122(30.9)	46(11.6)	250(63.3)	0.000*
		No , I don't want to quit	4(1)	6(1.5)	1(0.3)	11(2.8)	
		Yes, I need help	0(0)	19(4.8)	15(3.8)	34(8.6)	
		Yes, Im ready to quit	9(2.3)	50(12.7)	41(10.4)	100(25.3)	

NS – Not significant, * - Statistically significant at p <0.05, Chi-Square Test

IV. DISCUSSION

This study revealed that although most participants were aware that oral diseases can progress to cancer, knowledge regarding Oral Potentially Malignant Disorders (OPMDs) was considerably lower. This indicates that general awareness programmes focusing only on cancer may not be sufficient, as early detection depends on recognizing pre-cancerous changes.

Age-wise differences in awareness were evident, with older participants showing higher levels of knowledge compared to younger respondents. This trend suggests that as individuals grow older, exposure to health information and life experiences may improve their awareness. However, the lack of knowledge among younger groups is concerning because lifestyle habits such as tobacco or areca nut use often begin at an early age.

In terms of lifestyle factors, although most participants were aware that betel nut or chewing tobacco can cause cancer, actual usage of these substances was still reported. This highlights a limitations between knowledge and behavior, which has also been observed in previous studies conducted in different populations^[11- 13]. It reinforces the need for preventive interventions that not only spread information but also encourage behavioral change.

The results also showed that many participants had never received formal health education about oral cancer or OPMDs. Those who had learned about these conditions mostly received the information from dentists or through social media. Similar findings have been noted elsewhere, where lack of structured education programs contributed to delayed awareness and late diagnosis^[14- 15].

Health-seeking behavior patterns in this study further underline the challenge: a large number of individuals preferred waiting, using home remedies, or consulting family and friends instead of seeking professional dental care. Fear,

cost, and lack of time were cited as the main barriers. These findings are consistent with earlier reports, where such barriers prevented early detection of precancerous changes^[16 - 17].

Overall, the findings emphasize that awareness alone is not enough. Structured health education, preventive dental visits, and strong community-based awareness programs are essential to bridge the gap between knowledge and practice. Targeting young adults with modified interventions are essential in reducing a long-term burden of oral cancer.

V. CONCLUSION:

The study revealed that while oral cancer awareness among young adults was relatively high, knowledge regarding OPMDs and their early signs was limited. Significant limitations were observed in recognizing symptoms and understanding lifestyle-related risk factors, such as alcohol consumption, tobacco usage, areca nut use. Health-seeking behaviors were inadequate, with many participants preferring home remedies or delaying professional consultation. These findings highlight the need for targeted educational programs, community-based awareness programmes, and preventive dental initiatives aimed at young adults to promote early detection, encourage healthier lifestyle choices, and reduce the overall prevalence of oral cancer.

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