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'Assessment of oral health status and tobacco use pattern among adults residing in selected urban area of Itanagar, Arunachal Pradesh.

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Abstract:
Background*: Oral health is considered one of the most essential parts of general health. It is lot more than just having a healthy tooth. World Dental Federation defines oral health which includes person's ability to speak, smile, smell, taste, touch, chew, swallow and conveying of emotions by facial gesture with self-confidence and no pain[1]. It has been found that oral health is associated with many chronic diseases, the common risk factors which is related to oral health problem are alcohol consumption, tobacco use and unhealthy diet basically related to diet high in free sugar[2]. Among the above given risk factors the most common is the use of tobacco.*
Materials and Methods*: A descriptive research study was conducted for the assessment of oral health status and tobacco use pattern among 200 adults residing in selected urban area of Itanagar, Arunachal Pradesh. Data related to background information and tobacco use pattern were collected by pretested validated interview schedule and oral health status was assessed by Oral Health assessment tool.*
Results*: The finding of the study revealed that hypertension was the most common chronic disease noted among the participants which was 10%. Almost one third of the participants (33%) had tooth sensitivity followed by tooth decay(28%). Data further revealed that most of the participants had unhealthy changes in Oral health status that is 70.5%. Furthermore, it was seen that 50% of participants were tobacco users and among them 37.5% participants consumed smokeless tobacco and only 24.5% of them used smoked tobacco. Significant association was found between oral health status and tobacco use in any form, only smoking and in smokeless form also. Odd ratio calculation was done for oral health status and tobacco use where the calculated values were more than 1 which signifies association.*
Conclusion: *The study findings can be helpful in community health nursing practice as it can be used in awareness campaign to encourage people in adopting healthy lifestyle. It also serves as a valuable reference material for the future researcher.*
Key Word*: Oral health status; Tobacco use.*

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I. Introduction

Healthy life begins with healthy oral health. It is said that smile is one of the powerful gesture which signifies a person's feeling and mood.[1] Genuine and heartful smile comes from heart but a healthy smile comes from good oral health[3].

Cleaning of teeth and oral cavity is the most basic and important task that we do to start our day but one of the most neglected part in terms of maintaining hygiene, good oral hygiene practice includes brushing teeth at least 2 times a day, using toothpaste, changing toothbrush in regular interval, rinsing of mouth, cleaning of tongue, visit to dentist regularly and not using tobacco.[4]

Global burden of disease study in 2019 found that oral diseases affect around 3.5 billion people in the whole world where carries of permanent teeth was found to be the most common condition. It further reported that over 2 billion people suffer from caries of permanent teeth annually.[2]
It has been found that oral health is related to many conditions like alcohol consumption, tobacco use and unhealthy diet basically related to diet high in free sugar.[2] Among the above given risk factors the most common is the use of tobacco.

In the recent report by Times of India, oral health related issues were increasing in the country as dental care and oral hygiene are not considered as important because of misconception that if your overall health is good than your oral health is also good. This is also contributed by the behaviour which further worsen the situation and at last it becomes a huge oral health problem. As those problems if not rooted out during the budding stage the chance of oral cancer may rise significantly.[5]

In the year 2022 a report was published by The Times of India which shows that northeast states of India have the highest prevalence of alcohol and tobacco consumption which was carried by National Center for Disease Informatics and Research under the Indian Council of Medical Research, Bengaluru. The result shows prevalence of current tobacco use in any form in the area was found to be 45.7% where use of smoking tobacco was 15.5% and smokeless tobacco was 33.6% which was stated as matter of concern because it could be related to different diseases in the area.[6]

Global Youth Tobacco Survey fourth round conducted in the year 2019 shows that tobacco use among the population was highest in Mizoram and Arunachal Pradesh that is (58% each)[7].

Oral health is a neglected problem worldwide, most of the people do not pay any attention to oral health until or unless any problem arises. So, the aim of this study is to provide real scenario of the problem related to oral health and its relation with the tobacco use which can serve as a guidance for policy development to improve the condition. Furthermore, literature associated to oral health and hygiene related information in our country is limited to very few so this study can help in implementation of good oral hygiene measures in primary level and increase awareness about their own oral health and consequences of using tobacco thereby promoting health and wellbeing.

II. Material And Methods

A descriptive research study was carried out to assess the oral health status and tobacco use pattern among adults residing in selected urban area of Itanagar, Arunachal Pradesh. This study was conducted at Gohpur urban area of Ward No. 2 Itanagar, Arunachal Pradesh.

Study Design: Descriptive research design.
Study Location: There are 30 wards in Itanagar from where Gohpur urban area of ward no.2 was selected randomly by lottery method
Study Duration: March 2023 to April 2023.
Sample size: The sample size for final study was 200. All adults both male and female were included in the study.
Sample size calculation: The sample size estimation was done on the basis of a single proportion design. Considering confidence level of 95% , allowable error as 0.07% and 39.9 % as Prevalence of the tobacco use in previous study, the calculated sample size obtained for this study was 188 and considering non response rate, final sample size was decided as 200 sample.
Subjects & selection method: In the present study Systematic random sampling technique was used to select the houses. At first preliminary survey was done to know the number of adult population in the area which was 710, total number of houses were also identified as 192 in the area. Systematic random sampling technique was used to select the houses. Consecutively every 3rd house was selected and then in the selected house all the adults including male and female available during data collection period were taken as sample. The process was continued until the required sample size was obtained.

Inclusion criteria:
1. Person who was present at the time of data collection.
2. Person who was above 18 years of age as mentioned in Aadhar card.
3. Both male and female were included.

Exclusion criteria:
1. Physically and psychologically unstable person.

Procedure methodology

Administrative permission was taken from respective ward councillor and the district authority of Arunachal Pradesh. With ethical clearance from the Institutional Ethical Committee. Data collection done with utilizing two tools; self prepared interview schedule and Oral Health Assessment Tool (OHAT)[8,9]

Self prepared interview schedule consisted two section. First section consisted of 6 items on demographic data; 11 items on oral hygiene practices; second section consisted of 14 items measuring both smoking and smokeless tobacco use. Face validity followed by Content validity was tested. Content validity index was 0.8 to 1.0 and reliability was tested by test & retest method. Cohen's kappa was calculated; ranged between 0.80 to 1.0

Oral Health Assessment Tool (OHAT)[8,9] a standardized tool was used for assessing oral health status by observation method which consisted of 8 items that is lips, tongue, gums, saliva, teeth, dentures, oral cleanliness and dental pain. Permission for using standardized tool that is Oral Health Assessment Tool (OHAT) was also taken. Interrater reliability using Karl Pearson was calculated and value was 0.92 and was considered reliable.

The observation was measured by using three rating scale; 0 (healthy), 1 (unhealthy changes), 2 (unhealthy oral status) The maximum score was 16, where a total score ranging from 1 to 8 indicates unhealthy changes and 9 to 16 indicates unhealthy oral status,

Statistical analysis

Data was analyzed using SPSS version 20. Frequency and percentage distribution as descriptive statistics for describing the background information, tobacco us pattern and oral health status whereas odd ratio and chi square test was used as an inferential statistic to find association between oral health status and tobacco use.

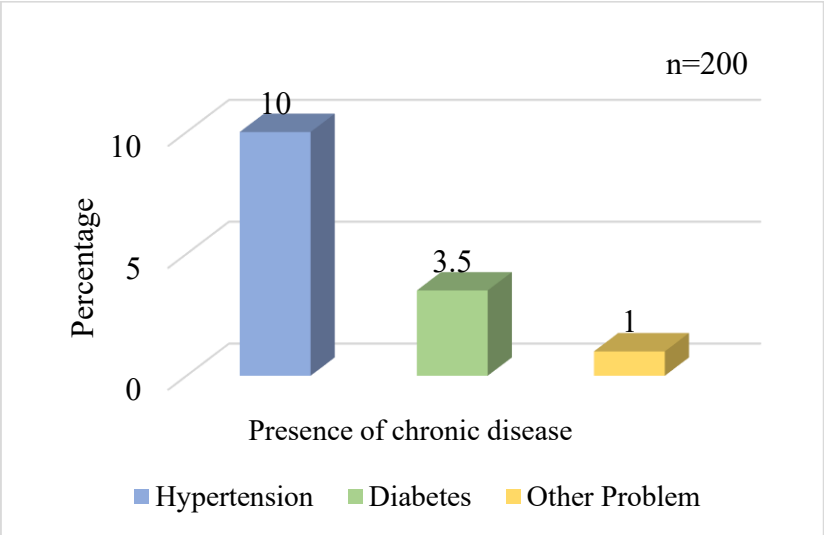
III. Result

The data presented in **table 2** shows that 44% participants were male and 56% of them were female; 48.5% participants belonged to the age group of 18-28 years whereas only 14 % participants belonged to the age group of 40-50 years and above 50 years of age. Turning to educational status of the two fifth of the participants i.e 39% of them studied till secondary level while 15% of them have completed primary level. Almost one third of the participants were unemployed. The data presented in **figure 3** shows that 10% participants reported that they were suffering from hypertension; 3.5 % participants diagnosed diabetes and only 1 % participants

Table 2: Frequency and percentage distribution of demographic characteristics of the participants

n= 200

Characteristics	Demographic profile	Frequency	Percentage
Gender	• Male • Female	88 112	44 56
Age	• 18-28 years • 29-39 years • 40-50 years • Above 50 years	97 47 28 28	48.5 23.5 14 14
Religion	• Hindu • Muslim • Christian • Any other	40 18 75 67	20 9 37.5 33.5
Educational status	• Illiterate • Primary • Secondary • University	42 30 78 50	21 15 39 25
Occupation	• Service • Business/Self employed • Daily wages/ labour • Homemaker • Unemployed	29 46 17 39 69	14.5 23.0 8.5 19.5 34.5



Data were not mutually exclusive and exhaustive

Figure 3: Percentage distribution of participants in terms of presence of chronic disease

The data presented in **table 3** provides information that most of the participants that is 81.5% brush their teeth 1 to 2 times a day whereas other 8.5% participants did not brush their teeth regularly. Data further indicates that 56.5% participants always rinse their mouth after eating food, 60.5% of them changed their toothbrush within every 6 months. The table reveals that 95.5% participants visited dentist only when required. It has been noted that all 200 participants used toothpaste and toothbrush to maintain their oral hygiene, out of which 71.5% participants always clean their tongue while brushing teeth, the table also depicts that participant who ate sweets and drank alcohol occasionally was 68% and 51.5% respectively.

Table 3: Frequency and percentage distribution of the participants based on oral hygiene practice

N=200

Oral hygiene practice	Frequency	Percentage
Brushing in a day		
• Irregular	17	8.5
• One to two times a day	163	81.5
• More than 2 times a day	20	10
Rinsing of mouth		
• Never	54	27
• Sometimes	33	16.5
• Always	113	56.5
Changing tooth brush		
• Within every 6 months	121	60.5
• Every 7-12 month	10	5
• Till bristle gets fray	69	34.5
Visit to dentist		
• Within every 6month	5	2.5
• Within every 7-12month	4	2
• Until any problem arises	191	95.5
Teeth cleaning agent		
• Tooth paste and tooth brush	200	100
Tongue cleaning		
• Never	30	15
• Sometimes	27	13.5
• Always	143	71.5
Habit of eating sweets		
• Never	47	23.5
• Occasionally	136	68
• Regularly	17	8.5
Habit of drinking alcohol		
• Never	75	37.5
• Occasionally	103	51.5
• Regularly	22	11

Approximately one third participants (33%) reported tooth sensitivity and only 7% participants reported foul smell, represented in **Table 4**

Table 4: Frequency and percentage distribution of participants in terms of presence of oral health problem

N= 200

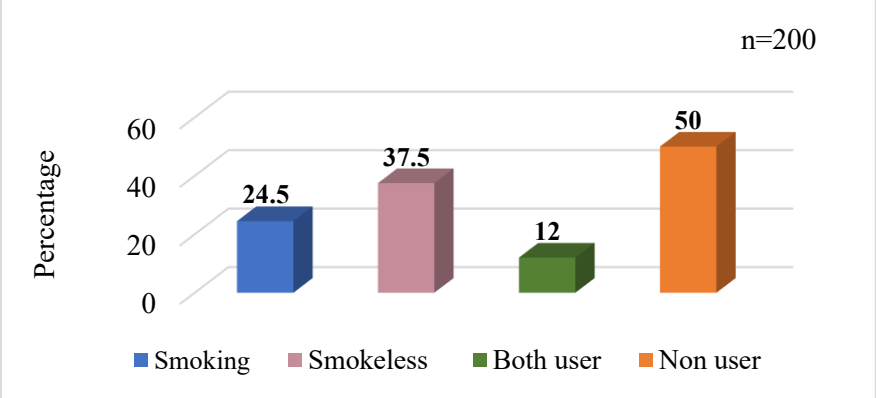
Oral health problem	Frequency	Percentage
Presence of oral health problem		
• Toothache	37	18.5
• Bleeding gums	37	18.5
• Yellowish discoloration	37	18.5
• Foul smell	14	7
• Tooth sensitivity	66	33
• Tooth decay	56	28

Data were not mutually exclusive

Majority of the participants that is 70.5% had unhealthy changes in oral health status while 8% participants were observed to have unhealthy oral status and only one fifth participants(21.5%) of them had healthy oral health status, represented in **table 5**

Table 5: Frequency and percentage distribution of participants in terms of oral health status
N = 200

Oral health status	Score range	Frequency	Percentage
Healthy	0	43	21.5
Unhealthy changes	1to 8	141	70.5
Unhealthy oral status	9 to 16	16	8.0



Data were not mutually exclusive

Figure 4: Shows the percentage distribution of the participants in terms of tobacco use

Out of 200 participants half of them i.e 50% did not use tobacco in any form , remaining 50% were using tobacco. 37.5% participants consumed smokeless tobacco, 24.5% participants were indulged in using smoked tobacco and 12% participants were using both smoking and smokeless tobacco. Among all the smoking tobacco users 92% participants used cigarette whereas 49% of them preferred bidi. In case of smokeless tobacco, 62.6% participants preferred chewing tobacco and 54.6% of them used betel leaf with tobacco while only 33.3% participants were inclined to khaini.

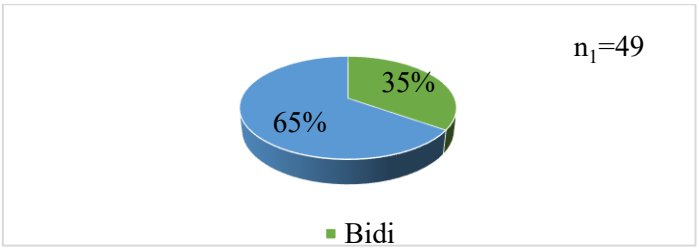


Figure 5: Distribution of the participants in terms of using different forms of smoking tobacco

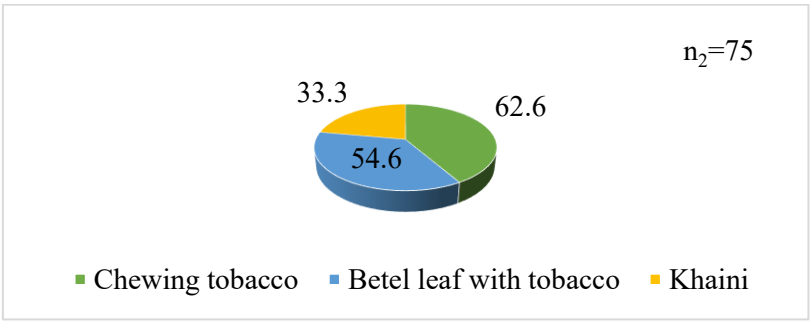


Figure 6: Distribution of the participants in terms of using different forms of smokeless tobacco

36% of participants smoked regularly whereas only 4% of them were intermittent smoker. On further analysis the data shows that 42% participants consumed tobacco 1 to 10 times per day and a minor proportion that is 3% of them had 11 to 20 times day. 24 % participants preferred not to smoke early in the morning ; other 20% of them like to smoke in the morning. It is evident that 14% of participants compulsively smoked within 2 to 4 hours and only a negligible 1% participants had desire to smoke after 1 to 3 days. However, 20% of them made an attempt to quit smoking, on the other hand 30% of participants noted that they can successfully stop smoking if they

wanted. 46%participants chewed tobacco throughout the month and 4% of them consumed irregularly. It is observed, few participants that is 21% had the urge to take tobacco in the morning while almost its double figure that is 39% were not keen on taking tobacco in the starting of the day. There were 23% participants who had strong impulse to consume tobacco every after 4 days or more and only 1% of them had compulsively consumed tobacco every after 1 to 3 days. It is noticed that 33% of participants tried to stop consuming tobacco completely while 39% of them stated that they could quit tobacco if they wished. Data represented in Table 6

Table 6: Frequency and percentage distribution of participants in terms of tobacco use pattern

n_3= 100

Tobacco use pattern	Smoking (f)	%	Smokeless (f)	%
Tobacco use over past 30 days				
• 1 to 9 days	9	9	25	25
• 10 to 19 days	4	4	4	4
• 20 to 29 days	-	-	-	-
• All 30 days	36	36	46	46
Use of tobacco per day				
• 1 to 10 per days	42	42	67	67
• 11 to 20 per day	3	3	5	5
• More than 20 per day	4	4	3	3
Tobacco using first thing in the morning				
• No	24	24	39	39
• Sometimes	5	5	15	15
• Always	20	20	21	21
Felt strong desire to take next time				
• Within 60 minutes	11	11	14	14
• 1 to 2 hours	11	11	20	20
• Within 2 hours to 4 hours	14	14	10	10
• More than 4 hours less than one full day	4	4	7	7
• 1 to 3 days	1	1	1	1
• 4 days or more	8	8	23	23
Trying to stop using tobacco	20	20	33	33
Able to stop using if wanted to	30	30	39	39

n_3= total number of participants who were using tobacco
Data were not mutually exclusive and exhaustive

Table 7: Association between oral health status and tobacco use among the participants

N= 200

Tobacco use		Oral health status			df	Chi square value	Significance level at 0.05
		Healthy	Unhealthy changes	Unhealthy oral status			
Any form of tobacco	Yes	14	74	12	2	9.56*	p<0.05
	No	29	67	4			
Only smoking	Yes	6	34	9	2	11.31*	p<0.05
	No	37	107	7			
Only smokeless	Yes	8	58	9	2	9.74*	p<0.05
	No	35	83	7			

$\chi^2 = 5.99$; df = 2; $p<0.05$

Table 8: Odd ratio value showing association between oral health status and tobacco use among the participants

N = 200

Tobacco use		Unhealthy changes & unhealthy oral status	Healthy	
Any form of tobacco	Yes	86	14	2.50*
	No	71	29	
Only smoking	Yes	43	6	2.32*
	No	114	37	
Only smokeless	Yes	67	8	3.25*

	No	90	35	

Data of table 9 shows, oral health status is associated with use of tobacco. The data presented in table 8 inferred that tobacco use in any form (either or both smoking &smokeless) risk of having unhealthy oral status is 2.50 times more than those who were not using it in any form. The data also revealed that use of only smoking tobacco risk of having unhealthy oral status is 2.32 times more than those who were not using smoking tobacco. Furthermore, the data depicted in above table shows that use of only smokeless tobacco risk of having unhealthy oral status is 3.25 times more than those who were not using smokeless tobacco. Hence the research hypothesis H_1 was accepted and null hypothesis was rejected. So, inference was drawn that there is statistically significant association between oral health status and tobacco use among the participant's as calculated value is greater than 1 at 0.05 level of significance.

IV. Discussion

In the present study most of the participants that is 81.5% of them brush their teeth 1 to 2 times a day and 95.5% did not visit dentist until any problem arise.

The above study was supported by Gharpure SA et al which shows that 51.7% of the people brush twice a day and 42.1% of the participants brush their teeth once daily, 70.4% of them have confirmed their visit to dentist only when any problem arises.[10]

A study done by Dash P shows that 20.02% participants were found to have good oral hygiene index[11] which is supporting this present study where 70.5% participants were having unhealthy changes in oral status, 8% of them were having unhealthy oral status and 21.5% participants were presented with healthy oral status The study was further supported by Gadekar AS, Kedar GT where 82.54% participants oral hygiene status were affected and only 17.46% of them were having healthy oral hygiene status.[12]

In the present study 37.5% participants consume smokeless tobacco while 24.5% of them used smoked tobacco. In case of smoking tobacco user 65.2% participants used cigarette, whereas 34.8% of them preferred bidi. 20% of the participants who used smoking tobacco and 33% of the them who used smokeless tobacco tried to quit. This finding is supported by the study done by Divinakumar K J et al where 23.4% participants used smoking tobacco and 27.3% of them used smokeless tobacco furthermore 52.9% participants tried to quit tobacco use and also among smoker use of cigarette and bidi was 57.3% and 32.2% respectively.[13]

V. Conclusion

From the study findings it can be concluded that most of the participants that is 70.5% of them presented with unhealthy changes in oral health status, out of 200 participants half of the participants were tobacco users in any form and among them smokeless tobacco users were the highest that is 37.5%. Most of the tobacco users were using tobacco all 30 days and statistically significant association was found between oral health status and tobacco use among the participants, calculated odd ratio value also shows significant association between oral health status and tobacco use among the participant's as measured value is greater than 1 at 0.05 level of significance.

The findings of this study have implication in community health nursing field, the study shows that most of the participants were having oral health problem which signifies that people are not taking their oral health seriously, so oral hygiene related campaign should be conducted time to time in the community level to encourage community people to acquire good habit and adopt healthy lifestyle.

Study shows half of the participant were using tobacco which contributes in oral health related problem therefore, awareness programme on hazards of tobacco use in schools and other community area by School Health Nurse and Block Primary Health Nurse to discourage initiation of tobacco use among youth should be organised, along with that counselling for those who are in need, connecting those individual with support groups and tobacco cessation programme in the primary level should be conducted along with that periodic surveillance to find the need for further education, change in policy and protocol to minimize tobacco use should be encouraged.

Author contribution :

- Study concept, design, mentoring proposal, methodology, analysis, interpretation, critical revision of manuscript – Prof (Dr.) Kasturi Mandal
- Study Implementation, tool development, data collection, organisation, analysis and drafting manuscript - Deepika Mara

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