ORIGINAL RESEARCH PAPER
Volume - 10 | Issue - 12 | December - 2021 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

STUDY ASSOCIATED WITH SMOKELESS TOBACCO USERS AFFECTING ORAL TISSUES AMONG AGE GROUP OF 15-30 YEARS RESIDING IN KUMAON REGION

Dentistry

Dr Anil Pandey* Associate Professor, Department Of Dentistry, Soban Singh Jeena Government Institute Of Medical Sciences, And Research, Almora,Uttrakhand . *Corresponding Author

Dr Chandra Prakash Professor And Head, Department Of Forensic Medicine, Soban Singh Jeena Government Institute Of Medical Sciences, and Research, Almora, Uttrakhand.

Dr Vishnu Sain Assistant Professor, Department Of Oral Pathology & Microbiology Mahatama Gandhi Dental College And Hospital, Jaipur, Rajasthan.

Dr Manisha Pandey Government Medical Officer, SAD Mahella, Hawalbagh Almora.

ABSTRACT

Smokeless tobacco has been associated with oral cancer for many decades. Use of tobacco and tobacco-related products has unfortunately pervaded the ordinary household from being only occasional fashionable attributes to chronic potential toxicants thereby compromising immensely the health of the consumers especially more so since the synergistic action of nicotine with other drugs, drink and chemical usage has been observed. Rather than curbing their usage, the statutory warnings are ignored even among those who are sentimentally religious. In the recent days the habit of use of smokeless tobacco is spreading fast so much that even the school and college students are involved in this practice. In uttarakhand two region are there,Kumaon region and Garhwal region, In Kumaon region the use of smokeless tobacco is in the form of Gutkha and Mawa is highly common probably because of lack of oral health awareness and poor socio-economic status. To evaluate the oral tissue changes with smoke less tobacco users of age group 15-30 years, a study was designed to carry out at kumaon region of uttrakhand , India.

KEYWORDS

Smokeless tobacco, Tobacco, Oral tissue changes.

INTRODUCTION:

Tobacco consumption is one such habit that is ironically referred to as an "aromatic means of lining the pocket of the manufacturer, the lungs of the consumer and the boxes of the undertaker"

Tobacco has been smoked, chewed, and inhaled in various forms for more than 500 years. The use of smokeless tobacco has been, and remains, a worldwide phenomenon[1]. Smokeless tobacco is popularly used in one of two forms; either as dipping tobacco (snuff) or as rough-cut chewing tobacco. Snuff dipping consists of placing a pinch of powdered tobacco into the buccal sulcus, whereas the use of chewing tobacco consists of placing leaf tobacco or a plug of tobacco near the inner cheek. A "chaw" is a golf-ball-sized quid of leaf or plug tobacco on which the chewer sucks[2]. Smokeless tobacco (SLT) has been associated with oral cancer for many decades. Use of tobacco and tobacco-related products is as old as the earliest records and oral cancer has been described in the Sushruta Samhita, a treatise on Indian surgery written in Sanskrit around 600 B.C.[3] In addition, literary references to the habit of chewing betel quid (betel leaf,areca nut and lime) in India are at least 2,000 years old though tobacco was introduced around the sixteenth century[4] . In fact, there are several types of chewing habits featuring use of betel quid (fresh betel leaf, fresh areca nut, slaked lime, catechu and tobacco), pan masala (areca nut, slaked lime, catechu and condiments), mainpuri (tobacco, slaked lime, areca nut, camphor and cloves), mawa (areca nut, tobacco and slaked lime), khaini (tobacco and slaked lime), gutka (pan masala with tobacco) and other smokeless tobaccos (mishri, gudhaku, bajjar etc.). The two most important constituents of areca nut (misnamed as betel nut) are tannins (11-26%) and alkaloids (0.15-0.67%). Arecoline is the major alkaloid. Some of the minor ones are arecaidine, guacine, guvacoline and arecolidine. Other constituents of areca nut include fats, carbohydrates, proteins, etc[5].

In the recent days the habit of use of smokeless tobacco is spreading fast so much that even the school and college students are involved in this practice. In kumaon region of uttrakhand ,the use of smokeless tobacco in the form of Gutkha and Mawa is highly common probably because of lack of oral health awareness and poor socio-economic status.

To evaluate the oral tissue changes with smoke less tobacco users of age group 15-30 years, a study was designed to carry out at kumaon region of uttrakhand, India. In this study, an attempt has been done to record and correlate frequency of occurrence of all the oral tissue changes in individuals using smokeless tobacco.

AIMS AND OBJECTIVE:

1. Identification and recording of all oral tissue changes in individuals using smokeless tobacco, belonging to age group of 15 to 30 years, residing in kumaon region of uttrakhand
2. Identification and recording of all oral tissue changes in individuals with no habits, belonging to age group of 15 to 30 years, residing in kumaon region of uttrakhand.
3. Comparison of identified and recorded features between individuals with habit of smokeless tobacco and individuals without any habit.

MATERIALS AND METHOD:

A detailed assessment form was prepared with the help of questions from the Greer O. Robert[1] study and W.H.O questionnaire[6], to collect data from the people included in the study.

The assessment form consisted of two parts. The first part was a questionnaire regarding the individual's demographic details and usage patterns of tobacco and oral hygiene procedures.

The second part included the oral examination to record the dental, gingival and oral mucosal changes. A total of 400 individuals were selected for the study, 200 people with smokeless tobacco habit and 200 people without any tobacco habit. Control group constituted people between ages 15-30 years without any tobacco habit. Written consent to participate in the study was obtained.

Inclusion Criteria:

1. Individuals of age group 15 to 30 years, residing in kumaon region of uttrakhand.

Exclusion Criteria:

1. Individuals with known local/systemic disorders.
2. Medically compromised patients.
3. Anemia and ulcerative conditions.
4. Individuals with smoking habit and alcohol abuse.

A detailed questionnaire was given to individuals on random selection. Only completed questionnaires were included in the study and subjects were selected according to inclusion and exclusion criteria.

The subjects were examined on an upright chair in adequate natural light. Subjects were not permitted to crowd, around the examination chair, to allow sufficient light and to prevent errors during examination. Examination of the person was done by one examiner and recording of data was done by a trained person who assisted throughout the study .Examination was done in a uniform fashion beginning from the maxillary quadrant in a clock wise fashion using

Federation Dentaire Internationale (FDI) system .The subjects were examined using plane mouth mirror, Community periodontal index probe (CPI) and explorer and details were recorded. The findings recorded were subjected for statistical analysis using chi square test.

RESULTS:

Since the time of discovery of tobacco by *Christopher Columbus*[7], among the treasures of the New World; its use has provided powerful and immense satisfaction for its users throughout the world. These gratifications may be pharmacological, psychological, emotional or social in nature. Tobacco smoking and chewing are habits that are rapidly gaining popularity in our country. India is the world's third largest tobacco growing country, which produces an average of 5,80,000 tones every year[8]. Today our universe is in a state of tobacco epidemic with larger population of tobacco users emerging day by day. The term smokeless tobacco is used to describe tobacco that is consumed without heating or burning at the time of use. Smokeless tobacco can be used orally or nasally. The oral use of smokeless tobacco is widely prevalent in India; the different methods of consumption include chewing, sucking and applying tobacco preparations to the teeth and gums[9].

In the present study it was seen that 86.5% smokeless tobacco users were males and 13.5% were females. This study showed that among the smokeless tobacco users, about 78% had never undergone full mouth examination whereas among control group about 70.5% were never been for full mouth examination. Those who had undergone full mouth examination, 6 month back were 9.5% ,13% had undergone full mouth examination 1 year back and 6.5% had undergone full mouth examination 2 years back (Table-1).

Tables:

Table .1: Statistical analysis of male and female groups versus full mouth examination among smokeless tobacco users:-

Crosstab

			Full mouth examination				Total
			Never	6 months back	1year back	2 years back	
gender	Male	Count	132	9	17	15	173
		% of Total	66.0%	4.5%	8.5%	7.5%	86.5%
	Female	Count	24	0	0	3	27
		% of Total	12.0%	.0%	.0%	1.5%	13.5%
Total		Count	156	9	17	18	200
		% of Total	78.0%	4.5%	8.5%	9.0%	100.0%

X^2 =4.687 P=0.196

Table 2: Statistical analysis of male and female groups versus age at which first use of chewing tobacco among smokeless tobacco users:

Crosstab

			first use chewing tobacco				Total
			<15yrs	15-20yrs	20-25yrs	25-30yrs	
gender	Male	Count	24	108	39	2	173
		% of Total	12.0%	54.0%	19.5%	1.0%	86.5%
	Female	Count	0	18	9	0	27
		% of Total	.0%	9.0%	4.5%	.0%	13.5%
Total		Count	24	126	48	2	200
		% of Total	12.0%	63.0%	24.0%	1.0%	100.0%

X^2 =5.257 P=0.154

Table3: Statistical analysis of male and female groups versus brand of tobacco used among smokeless tobacco users:

Crosstab

			brand					Total
			gutka	Mawa	Khaini	paan with tobacco	other brand	
gender	Male	Count	76	31	18	39	9	173
		% of Total	38.0%	15.5%	9.0%	19.5%	4.5%	86.5%
	Female	Count	4	2	2	18	1	27
		% of Total	2.0%	1.0%	1.0%	9.0%	.5%	13.5%
Total		Count	80	33	20	57	10	200
		% of Total	40.0%	16.5%	10.0%	28.5%	5.0%	100.0%

X^2 =22.782 P=0.000 (P<.0005)

Table 4: Statistical analysis of male and female groups versus dental caries among smokeless tobacco users:

Crosstab

			caries		Total
			absent	present	
Gender	male	Count	120	53	173
		% of Total	60.0%	26.5%	86.5%
	female	Count	7	20	27
		% of Total	3.5%	10.0%	13.5%
Total		Count	127	73	200
		% of Total	63.5%	36.5%	100.0%

X^2= 19.013 P=.0005

Table 5: Statistical analysis of male and female groups versus community periodontal index among smokeless tobacco users:

Crosstab

			CPI Index					Total
			Healthy	Bleeding	Calculus	pocket 4-5mm	Pocket 6mm or more	
gender	Male	Count	60	56	29	28	0	173
		% of Total	30.0%	28.0%	14.5%	14.0%	.0%	86.5%
	Female	Count	4	7	4	11	1	27
		% of Total	2.0%	3.5%	2.0%	5.5%	.5%	13.5%
Total		Count	64	63	33	39	1	200
		% of Total	32.0%	31.5%	16.5%	19.5%	.5%	100.0%

X^2 =16.872 P=0.002

Table 6: Statistical analysis of male and female groups versus mucosal changes among smokeless tobacco users:

Crosstab

			Mucosal								Total
			No abnormal condition	Malignant tumor	Leuko plakia	Lichenoid reaction	Ulcer ation	Candi diasis	Abscess	Chewers mucosa, OSMF	
gender	Male	Count	150	3	5	5	4	0	2	4	173
		% of Tota	75.0%	1.5%	2.5%	2.5%	2.0%	.0%	1.0%	2.0%	86.5%
	Female	Count	22	0	0	2	1	2	0	0	27
		% of Tota	11.0%	.0%	.0%	1.0%	.5%	1.0%	.0%	.0%	13.5%
Total		Count	172	3	5	7	5	2	2	4	200
		% of Tota	86.0%	1.5%	2.5%	3.5%	2.5%	1.0%	1.0%	2.0%	100.0%

X^2 =16.616 P=0.020

It was very interesting to see the age and first use of chewing tobacco. 63% (Table-2) started chewing tobacco at the age between 15-20 years and only 12% had started below age of 15 years and about 25% started above 20 years. In the study published by Chen JW, Shaw.J.H.[7] in which a survey of Kaohsiung residents, most of smokeless tobacco users were in younger age group.

In another study, Grandy .D [10] surveyed 1109 base ball players for the use of smokeless tobacco. They found that about 51% of smokeless tobacco users were between 20-24 year age group and 8.6 % were below 20 years.

Frequencies of chewing tobacco among smokeless tobacco users were more than five times in a day. While comparing the different brands of tobacco used by smokeless tobacco users, the consumption of Guthka was among 40 %, paan with tobacco among 28.5%, mawa was consumed by 16.5%, khaini was by10% and other brands were consumed by 5% (Table-3).

There was no statistically significant result between use of brand every time among smokeless tobacco users .71% of smokeless tobacco users used the same brand every time for chewing smokeless tobacco and 28.5 % of people changed the brand frequently.

41.5 % of smokeless tobacco users keep smokeless tobacco material on the right maxillary buccal areas, 14.5% keep on right mandibular buccal region but only 5% keep the smokeless tobacco in anterior mandibular labial region In the study done by Ahmad.S[11] it was found that gutkha was used most commonly by people suffering from oral sub mucous fibrosis and they kept it in their mouth for 2-10 minutes in the mandibular buccal vestibule.

It was very interesting to note that there was significant relationship between dental caries and smokeless tobacco users; P = 0.0005.About 36.5 % of smokeless tobacco users had dental caries (Table-4).Thavarajah. R [12] also reported increased incidence of caries in association with smokeless tobacco users. Among control group only 26.5% of people had dental caries.

Among smokeless tobacco users 25% had abrasion, 5% had attrition, and 3.5% had erosion of the teeth in our study .Similar to our study, Van Wyk 1965[13] also found attrition as a common observation in snuff dippers in South Africa.

The result of our study showed about 32% of people with healthy gingiva, 31.5% showed bleeding, 16.5% had calculus, 19.5% showed involvement of pocket of depth of 4-5 mm, among smokeless tobacco users. Among the controls, healthy gingiva was shown by 55% of people, 26 % showed bleeding, 12% had calculus, 6.5% showed involvement of pocket of depth 4-5 mm.

The analysis of periodontal health state among smokeless tobacco

users was as follows. The value of Score 0 among 71% of smokeless tobacco users, 28% smokeless tobacco users had Score 1, 0.5% had Score 2 and 0.5% showed Score 3(Table-5).The statistical analysis showed P=0.002 which suggests a correlation between the loss of attachment and smokeless tobacco users .Similar to our study, Neely AL et al also reported an increased incidence of loss of attachment in association with betel nut usage[14].

The mucosal changes noted in the study are as follows (Table-6); among smokeless tobacco users 2.5% had leukoplakia, 3.5 % had lichenoid reaction, 2.5% had ulceration, 1.5% had candidiasis 1% had periodontal abscess, 1% had other conditions like chewers mucosa and oral sub mucous fibrosis .Mehta et al (1972)[15] also reported 1.6-6.5% prevalence of leukoplakia in their study among smokeless tobacco users. In our study the control group showed only 1.5% ulceration, 0.5% Candidiasis and 1% showed periodontal abscess. Grandy.D et al 1990[10] also reported higher incidence of oral mucosal lesions in smokeless tobacco users compared to non users.

The comparison between smokeless tobacco users and control group showed statistically significant results for the parameters such as community periodontal index, abrasion and mucosal changes only.

Thus the present study showed certain interesting observations about smokeless tobacco usage such as the use by younger age; first use before 15 year etc. The results about the dental, mucosal, gingival and periodontal health status is in consistent with other reports which have shown the higher incidence of them among smokeless tobacco users.

CONCLUSION:

Smokeless tobacco is used in diverse forms in India for chewing, sucking in the mouth until Programs should be designed for junior and senior high school students need to address not only prevention, but include cessation of habit of tobacco chewing. From the results of our survey, an educational program for 12-14-year-old schoolchildren at the State sites may be appropriate, but an overall needs assessment should be conducted at each location to target programs effectively.

In general, education programs need to provide more than basic knowledge about ST.

REFERENCES:

1. Greer OR, Poulson TC, Denver, Colo. Oral tissue alterations associated with the use of smokeless tobacco by teen-agers Oral Surg Oral Med Oral Pathol 1983; 56(3):275-284.
2. Christen.AG, Armstrong WR, Mc Daniel, R.K. Intra oral leukoplakia, Abrasion, periodontal break down, and tooth loss in snuff dipper. J Am. Dent Assoc 1979; 98:584-586.
3. IARC: Tobacco habits other than smoking; betel quid and arecanut chewing and some related nitrosamines. *IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans,* **37:** 141-200 (1985). *Centre Newsletter*, **10(2):** April-June, (2000).
4. Chiba, I.: Betel Quid chewing. *Asian Pacific J. CancerPreven.*, **2**: 264-269 (2001).
5. Sharma, T.V.R.S., Attri, B.L. and Suryanarayana, M.A.: Areca Nut- a potential crop for tropical hot and humid areas of the SAARC region**.** *S.A.A.R.C. Agricultural Information.*
6. Oral Health Surveys: basic Methods 4th edition world Health Organization, Geneva.
7. Christen AG, Swanson, BZ, Glover, ED, Henderson AH. Smokeless tobacco: The folklore and social history of snuffing, sneezing, dipping, and chewing. J. Am. Dent. Assoc 1982; 105: 821-829.
8. Rinu K and Raju R. ".Tobacco menace in India" Department of biochemistry; Aimms, New Delhi: 1998.
9. http://www.heath.nic.in/smokeless /toba.def/index.html (accessed July2007).
10. Grady D, Greene J, Daniels TE et al. Oral mucosal lesions found in smokeless tobacco users. J Am Dent Assoc 1990; 121: 117-23.
11. Ahmad MS, Ali S, Ali AS, Chabubey KK. Epidemiological and etiological study of oral submucous fibrosis Gutkha chewers of Patna, Bihar, India J Indian See Podod Prev Dent - June 2006.
12. Thavarajah .R, Rao.A, Raman.U, Saraswathi T, Rajasekaran , Elizabeth J, Hemalatha R, Ranganathan .K Archives of Oral Biology (2006) 51, 512-519.
13. Wyk V: The Oral Lesion Caused by Snuff: A Clinicopathologic Study Med.Proc. 1965; 11:531-537.
14. Neely AL, Hoiford TR, Loe H, Anerud A, Boysen H. The natural history of periodontal disease in humans: risk factors for tooth loss in caries-free subjects receiving no oral health care. J Clin Periodontal 2005; 32: 984-993.
15. Mehta FS, Gupta PC, Daftary DK, Pindborg JJ, Choksi SK. An epidemiologic study of oral cancer and precancerous conditions among 101,761 villagers Maharashtra, India. International Journal of Cancer 1972; 10:134-141.