

## Cigarette smoking, snuff use and alcohol drinking: the associated risk behaviour for oral health in young Indian males

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### Abstract

**Objective:** To determine patterns of tobacco chewing, smoking and alcohol drinking in a sample of young males

**Method:** The subjects answered a questionnaire concerning tobacco smoking habits, snuffing habits, consumption of alcohol and subjective evaluation of periodontal health and oral mucosa. The subjects with tobacco and alcohol use, were subjected to thorough clinical examination of the oral cavity for the evaluation of the periodontal health and the oral mucosa.

**Result:** The study showed that about 30% of subjects reported the use of tobacco in either chewing or smoking form. On clinical examination of the oral cavity, chronic smokers were found to be significantly affected with periodontitis (5.1%), in the form of pocket formation or recession, or both (Odds Ratio = .118, 95% Confidence Interval: .027-.511). And 8.4% of the sample had changes in their oral mucosa due to chronic tobacco use and others (Odds Ratio = 8.796, 95% Confidence Interval: 2.094- 36.949).

**Conclusion:** Both tobacco use and alcohol drinking have been independently associated with a variety of pathological oral conditions in adults. Their effect on oral health need to be investigated in prospective studies and should be of concern to the dental professionals.

**Key words: Smoking, alcohol drinking, risk, behaviour, oral health, young males.**

### Introduction

Alcohol and tobacco are among the top causes of preventable deaths world wide<sup>(1)</sup>. Both alcohol and tobacco are a world wide threat to mankind. Moreover, these substances often are used together. Studies have found that people who smoke are much more likely to drink, and people who drink are much more likely to smoke<sup>(2)</sup>. Dependence on alcohol and tobacco also is correlated: People who are dependent on alcohol are three times more likely than those in the general population to be smokers, and people who are dependent on tobacco are four times more likely than the general population to be dependent on alcohol<sup>(3)</sup>. The link between alcohol and tobacco has important implications for those in the alcohol treatment field. Many alcoholics smoke, putting them at high risk for tobacco-related complications including multiple cancers, lung disease, and cardiovascular disease<sup>(4)</sup>. In fact, statistics suggest that more alcoholics die of tobacco-related illness than die of alcohol-related problems<sup>(5)</sup>.

Apart from being the most important determinant of cancer and cardiovascular diseases, smoking is also a threat to oral health<sup>(6-8)</sup>. Smoking is causally associated with oral and pharyngeal cancer, and the use of alcohol increases the risk even further<sup>(9, 10)</sup>. Smokers are also at higher risk of developing periodontal disease and severe disease progression<sup>(11)</sup>. A recent study by Zambon et al<sup>(12)</sup> indicates that smokers are more likely to be infected with periodontitis than non-smokers.

The health consequences of smokeless tobacco, on the other hand, are not well known, mostly because of the limited amount of research in this field and lack of knowledge on the population patterns of use. Knowledge is particularly scanty on the use among youths, although substance use is often established by the end of adolescence.

Indian males are the predominant users of combinations of snuff, cigarette, and alcohol. They are not used solely but are always used in combinations across the nation and this is typically seen in India when compared to other nations. The reason for the usage is different across each cultural background with a lot of traditional sentiments attached to it. Hence this paves way for limited scope on awareness on the ill effects on tobacco, alcohol and their by products. Hence in this study, we describe three major hazards of the oral mucosa, i.e. cigarette smoking, tobacco chewing and alcohol drinking among young males. Data on awareness of tobacco usage and its effects are available world wide but very few are available in India, despite of its significant uses. Hence this study was chosen to be conducted among one of the metropolitan areas in India. Chennai with its diverse cultural background constituted the study area. The aim of this study was to describe patterns of tobacco chewing, smoking and alcohol drinking in a sample of young males of age ranging between 19 - 25 years and their associated behavior for oral health.

### Materials and method



Study population: As in a cultured country like India significant users of various forms of tobacco were males hence only males were chosen. Young adults were seemed to be the appropriate target age group. Hence young adults belonging to 19 - 25 years were included. They were included as this is the most vulnerable age at which individuals develop this habit due to peer pressure, parental influence etc.

Ethical clearance: The study was conducted with ethical clearance and approval from the ethical committee of Department of Public health Dentistry, SRM dental college. The questionnaire was filled with consent of individuals.

A questionnaire was used followed with an oral examination. The questionnaire was circulated among males in the city. The sample size estimation was calculated with the help of a pilot study done on 10 adults. At a prevalence of 36%, alpha at 5% the total sample size constituted to about 498 to round off 500 individuals were included in the study. The questionnaire was filled randomly with subjects who till the desired number of 500 were obtained. The questionnaire was handed in person and collected on the same day. Those subjects who were non-cooperative and non-responsive were excluded from the study. The survey was on use of tobacco, alcohol consumption and other associated health behaviors among young males of 19 - 25 years of age. Of the 500 male subjects who participated in the survey, 474 answered (response rate = 94%) all the questions on tobacco use and were clinically examined for periodontitis and for any changes in the oral mucosa. They were informed about the purpose of the study and called for clinical investigation.

The subjects answered a questionnaire concerning tobacco smoking habits (no use, daily, and occasionally), snuffing habits, consumption of alcohol (no use, daily, and occasionally) and subjective evaluation of periodontal health using the WHO proforma 2004. Daily smokers were further asked about their daily cigarette consumption and the number of packets of tobacco in chewing form. The questionnaire also consisted of questions to assess whether a form or type of tobacco was consumed and as of when they consume it.

After the above information was gathered, those people who were found to use tobacco and alcohol everyday (not occasionally- twice or less than that a week, were not examined) were subjected to thorough clinical examination of the oral cavity. In total one hundred and forty one subjects were examined using the WHO proforma (2004) by a single examiner. The intra examiner variability for the questionnaire was 0.7 (fair agreement). The reliability of the questionnaire was found to be 0.6 (fair). The clinical examination comprised of the subjective evaluation of the periodontal health and the oral mucosa.

Data analysis

Statistical analysis was done using SPSS software version 14.0. A descriptive analysis was made. In multinomial logistic regression, cross sectional odds ratio of periodontitis associated with risk factors like

tobacco chewing, alcohol drinking and snuff use was computed. Two separate analyses were conducted. In the first place, information was used from all study subjects and modeled the likelihood of being a snuff user, conditionally on smoking and alcohol behavior. The second analysis was restricted to the users of single type of tobacco product, therefore modeling the likelihood of being a snuff user rather than a cigarette smoker or alcohol drinker. These were used to calculate the measures of association with risk factors (odds ratio) and their corresponding 95% confidence intervals (95% CIs). The level of statistical significance was set at 5% (P<0.05).

Result

Table 1 shows the percentage of current use of tobacco among males. It was found that 70.3% of subjects do not use tobacco currently. Whereas 15.8% of subjects reported only cigarette smoking. The combined use of cigarette smoking and tobacco chewing was seen in 12.2% of subjects. On the other hand 1.7% of subjects reported the use of only tobacco chewing.

Figure 1 shows the prevalence of tobacco use among study population. 33.1% consume on a regular basis, 20.7% are occasional users and rest of the study population never use.

Table 1. Shows the current use of tobacco among young males

Type of tobacco	Current use	
	N	%
No use	333	70.3
Only cigarette smoking	75	15.8
Only tobacco chewing	8	1.7
Combined use of smoking and chewing	58	12.2
<b>Total</b>	<b>474</b>	<b>100</b>

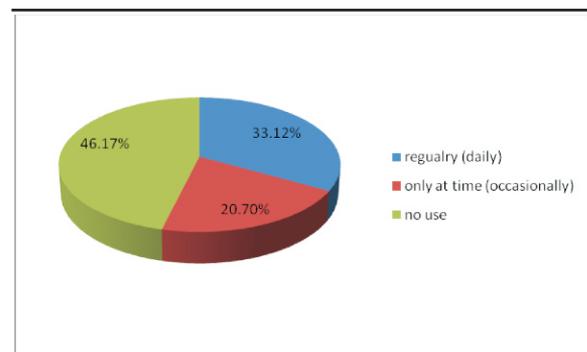


Figure 1. Prevalence of tobacco use among study population



It was seen that a majority of the study participants (59%) smoked cigarette. 26.2% of subjects smoked as well chewed tobacco only 7.9% of subjects had preferred the chewing form. Among snuff users, more than two-thirds were also cigarette smokers

(Figure 2).

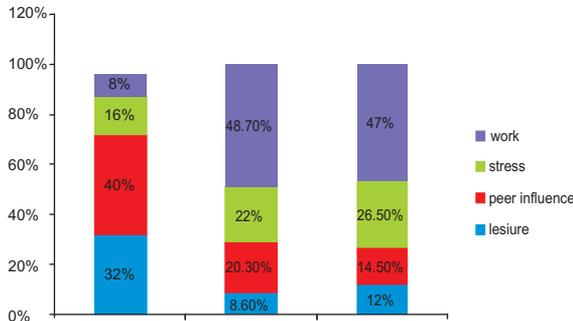


Figure 2. Shows the reasons for tobacco use

Figure 2 shows the reasons for tobacco use. The current users of tobacco (26.20% of the study subjects) were asked about the time of intake of tobacco and they were given the following responses: at work, at stress, peers influence, at leisure. Majority of the study subjects (40%) chewed tobacco due to peer influence. Majority of the study subjects opted to smoke when at work (48.7%). A combination of both the form was used mostly when at work (47%)

Majority of the study participants (67.4%) smoked 1-5 cigarette. a day, 20.7% of subjects used 6 to 10 cigarette and 11.1% of subjects smoked more than 10 cigarette a day.

Table 2 shows the Odds ratio for Cigarette Smoking, tobacco chewing and alcohol use as a risk factor of periodontitis in young males. It was found that chronic smokers take >10 cigarettes per day (11.11%), increasing the risk of periodontitis and other pathologic conditions. It was reported that about 67% of current smokers take 1-5 cigarettes per day and about 20% of subjects take 6-10 cigarettes daily. On calculating the multinomial logistic regression of these variables in relation to periodontitis, it was found that males who smoke more than 10 cigarettes daily are at a higher risk of periodontitis (P=<.004, .000, .000). The odds ratio for cigarette smoking as a risk factor for oral mucosal changes in young males. Daily smokers were found to have higher risks of alterations and changes in the oral mucosa. This data was found when odds ratio was calculated and found to be significant (P=<0.05).

It was found that 26% of the current users of tobacco use both cigarettes and chewing tobacco (snuff) and 9% were only snuff users. Among the current users of snuff, 62% of subjects reported of chewing 1-5 packets per day. eighteen percent of subjects used 6-10 packets and a minimum of 16% of subjects used more than 10 packets daily.

Table 2. the Odds ratio for Cigarette Smoking, tobacco chewing and alcohol use as a risk factor of periodontitis in young males

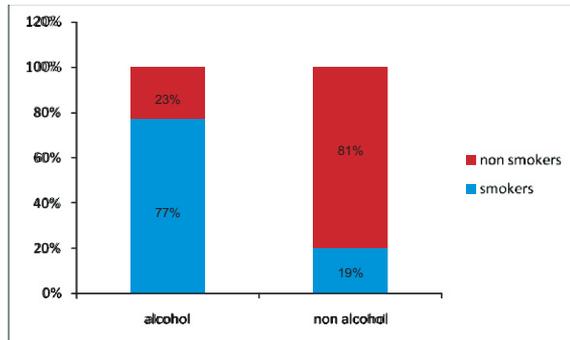
Figure 4. Shows the frequency of cigarette smoking per day

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S.no	Variables	Estimate Of Strength	Significance (p < 0.05)	Exp (b) (Odds Ratio)	95% Confidence Interval	
					Lower	Upper
1.	Use of tobacco	-2.135	.004*	.118	.027	.511
2.	Form of tobacco	.680	.523	1.974	.245	15.896
3.	Time of tobacco use	-1.328	.341	.256	.017	4.082
4.	Frequency of smoking	30.757	.000*	2.3	2.713	1.9
		30.663	.000*	1.1	1.163	1.2
5.	Frequency of chewing	-.555	.617	.574	0.065	5.065
6.	Use of particular brand	-.291	.641	.747	.220	2.538
7.	Consumption of alcohol	-2.056	.076	.128	.013	1.236

Odds ratio computed. P=<0.05, Significant.

About 33.3% of study subjects never consumed alcohol. 40.6% occasionally and 26.20% used alcohol on regular basis.



**Figure 3. Prevalence of smokers who also combined alcohol among the study population**

**Figure 3** shows the prevalence of smokers in combination with alcohol among the study population. It was found that among alcoholics 77% are smokers and 23% are non smokers. Among non alcoholic 19% are smokers and 81% are non smokers.

## Discussion

Smoking is the predominant form of tobacco use in most countries. In the western world, adolescent rates of cigarette smoking are similar between genders. Contrary is seen in India though. However, the use of smokeless tobacco in combination with alcohol is an almost exclusive male behaviour<sup>(13-15)</sup> and this holds true in India as well. Among males, both the adult prevalence of daily use and the overall prevalence of current use of snuff are around 19%. In line with other studies, a strong co variation of snuff use with both cigarette smoking and alcohol drinking was found in the present study as well<sup>(16-18)</sup>.

Smoking and alcohol drinking have been independently associated with several pathological oral conditions, the majority of which have a long induction period, while others should be considered even in clinical settings with adolescents. The association of both smoking and alcohol drinking with oro-pharyngeal cancer is well supported. The risk increases with low age at the onset of the habit. Alcohol drinking and smoking show a multiplicative interaction<sup>(9, 10)</sup>. The present study shows the highest alcohol consumption occurred among smokers (77%), representing the majority of combination users in this young population.

Smoking is also associated with non-neoplastic oral pathological conditions. Smokers have a five fold increased risk of severe periodontitis, and 80% of all patients with refractory periodontitis are smokers<sup>(19-21)</sup>. Early onset of periodontitis is more prevalent among smokers than among non-smokers<sup>(22)</sup>. Gingival recession, local attachment loss and snuff dipper's lesion have been described among regular smokers

and alcohol users<sup>(23)</sup>. The present study shows that daily smokers were found to have 2.17 times, alcoholics were found to have 0.12 times and in tobacco chewers this increased by 1.2 times of higher risks pertaining to the alterations and changes in the oral mucosa.

To our knowledge, the long term consequences for the oral mucosa of the combined use of snuff, smoking and alcohol have not been reported, but there are reasons to assume interactive effects. Our study shows that once these products are extensively marketed, their joint use is frequent at very young ages. Should these trends continue, we can foresee that an increasing proportion of the young male population will be exposed to the combined force of these lifestyle risk factors. In addition, we have to bear in mind that tobacco and alcohol are addictive, and therefore their use is likely to be long-lasting and difficult to abandon. This will have major implications for the dental professionals, knowing that each of these behaviors is likely to affect oral health later in life, and that their effect may be synergistic. Dental professionals, indeed, find themselves in a privileged position for promotion of oral health. Therefore, dental staff treating children and adolescents should be committed to early detection of these behaviors, as well as delivery of individual advice in order to avoid, among several health problems, poor oral health.

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