TOBACCO HABITS IN 35 TO 44 YEARS ADULTS AND PERIODONTAL STATUS: A CROSS SECTIONAL STUDY

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ABSTRACT

Introduction The relationship between tobacco both smoking & smokeless oral health is well known and its demographic variation have shown the effect on periodontal health. Its consumption have impact on periodontal disease as a risk of periodontal pocket increase with its frequency of its use, present study has been under taken to evaluate the effect of tobacco habits on periodontal status of 35 to 44 years age group. **Objective:** The objective of the study was to evaluate the effect of tobacco use on periodontal health status aged 35 to 44 years.

Material & Methods: The cross sectional study was conducted to observe the effect of tobacco habits on periodontal status for which 239 individuals were evaluated by cluster random sampling technique (male =214, female = 25) among them 192 individuals used smokeless tobacco and 47 smoking tobacco, community periodontal index, loss of attachments and gingival index were used. Statistical analysis done by using version 23, percentage, proportion, mean and standard deviation were taken (level of significance > P=0.05)

Result: Out of 47 smoking tobacco users 37 were male and 10 were female, out of 192 smokeless tobacco users 177 were male and 15 were female. Out of 47 smoking tobacco users 61.7% having CPI score 2, out of 192 smokeless tobacco users 78.6% having score 2.The difference was significant.

Conclusion The current study shows that tobacco whether smokeless or smoking is a major factor associated with periodontal destruction the vasoactive response from nicotine or a change in host response to periodontal pathogens which leads to the attachment loss is currently unknown. Tobacco in-turn not only increase the severity of periodontal diseases but also decrease the gingival tissue response to periodontal therapy.

Keywords: periodontal health, tobacco, adults.

INTRODUCTION:

The relationship between tobacco and oral health is well known and its demographic variation have shown the effect of smokeless tobacco on oral tissues, on periodontal health. Its consumption have impact on periodontal disease, as risk of periodontal pockets increased with frequency of its use. In addition to smoking,

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smokeless tobacco has also evidently shown its effect on various oral tissues.

Smokeless tobacco products have been in existence for thousands of years among populations in South America and Southeast Asia in varied forms such as *Khaini, Gutkha*, moist plug, *Toombak*, etc. Over time, these products have gained popularity throughout the world. Smokeless tobacco is consumed without burning the product and can be used orally and through nasal route. Oral smokeless tobacco products are placed in the mouth, cheek or lip and sucked (dipped) or chewed.[2]

Tobacco smoking, mostly in the form of cigarette& bidi smoking, is recognized as the most important environmental risk factor in periodontitis. Periodontal diseases are a dynamic phenomenon with cyclical patterns of progression and resolution at any given site. Tobacco smoking probably plays a significant role in the development of refractory periodontitis.[3,4,5]

Periodontal breakdown has been shown to be more severe among current smokers compared to former smokers. Those who have never smoked have been observed to have the lowest risk. Smoking has a strong negative impact on regenerative therapy, including osseous grafting, guided tissue regeneration, or a combination of this treatment.[6,7]

Josef examined periodontal needs according to the community periodontal index of treatment needs (CPITN) and smoking habits. The results showed that effect of both smoking and the number of cigarettes smoked had deleterious effect on periodontal status. Gerad*et al*., concluded that cigarette smoking was a major environmental factor associated with accelerated periodontal destruction in young adults. Palmer *et al*., reviewed the potential biological mechanisms underlying the effects of tobacco smoking on periodontitis and concluded that tobacco smoking has widespread systemic effects, many of which may provide mechanisms for the increased susceptibility to periodontitis and the poorer response to treatment.[8,9,10]

Tobacco use is directly related to a variety of medical problems including cancer, low birth weight, and pulmonary and cardiovascular diseases. In the past 25 years, there also has been an increasing awareness of the role of tobacco use in the prevalence and severity of periodontal diseases and subsequent tooth loss. 14-20. [11,12,13].

Objective

The objective of the study was to evaluate the effect of tobacco use on periodontal health status aged 35 to 44 years.

MATERIALS AND METHOD:

The cross sectional study was conducted to observe the effect of tobacco habits on periodontal status.35 to 44 years old adults (male & female) residing at Lucknow Mohanlalganj from urban and semi-urban locality were included in the study.Random sampling technique were used.

INCLUSION CRITERIA

- 35 to 44 years age adults.
- Adult using smoking or smokeless tobbacco.
- Adults who were willing to gave verbal consent.
- Adults with atleast 1 mandibular and 1 maxillary tooth on both side of arch included.

EXCLUSION CRITERIA

- Subject with physical and mental disability
- Edentoulous patient were not included.

After obtaining ethical clearance from ethical committee of institution, questionnaire was distributed to all the participants and they asked to complete it, the questionnaire included patient demographic ,routine oral hygiene practices, history of past and present tobacco use and duration (in year) and quantity (smoking and smokeless used).

Clinical examination: all the participants (n = 239) received oral examination using diagnostic mouth mirror,CPITN probe, explorer, cotton pellets and the following parameters were used to determine periodontal health of each individuals by using CPI, Loss of attachment and gingival index.

After taking verbal consent of all the participants,they were asked to fill the questionnaire based on the voluntary report of the consumption of smoking and smokeless tobacco users,participants were classified as: type,age of onset, average no. of cigarates, bidis and sachets used/ day, no. of years of regular tobacco used.

The amount of smokeless and smoking tobacco used was based on number of pack or piece. After completing the questionnaire, all the participants underwent clinical examination for the above mentioned parameters.

Statistical analysis:

This was done by using SPSS version 23

RESULT:

The present study was done on 35 – 44 years old adults. The aim of the present study was to assess the periodontal status and tobacco habits.

GRAPH 1: Depicts age &gender-wise distribution of 35-44 years of smoking and smokeless study population. In 35-44 years of population Female using smokeless tobacco was 21.3% and using smoking tobacco was 7.8%. populationmale using smokeless tobacco was 78.7% and using smoking tobacco was 92.2%.

TABLE 1: Shows co-relation between level of smoking and smokeless tobacco& CPI in 35-44 years adult population out of the total study sample (17.0%) , (61.7%), (21.3%) smoking population were reported to have bleeding gums, calculus & shallow pocket and (9.8%) , (78.6%), (12.0%) smokeless population were reported to have bleeding gums, calculus & shallow pocket respectively

TABLE 2: Association between smoking and smokeless tobacco&loss of attachment in 35-44 years adult population. In the total study smoking population (78%) were seen to have 0-3mm loss of attachment. Population who had smokeless tobacco in that (84.9%) were seen 0-3mm loss of attachment.Chi-square test shows association between loss of attachment & tobacco in 35-44 years adult population is statistically highly significant (0.001).

TABLE 3: Shows the co-relation between smoking and smokeless tobacco& gingival index in 35-44 years adults. In the total smokeless tobacco population (57.8%) had mild & moderate sign of gingival inflammation. In the smoking tobacco population (55.3%) had mild, moderate & severe form of gingival inflammation.

DISCUSSION:

The present study was undertaken on 35-44 years adults including females and males consuming smoked and smokeless tobaccowith an aim to determine the effect of tobacco use on periodontal status .Prior to the main study a pilot study was conducted among 50 samples . It was found from the study that tobacco effect was higher on male then female.On the basis of the pilot study main study was conducted.

The rationale of this cross-sectional survey was to examine the effect of commonly used different types of smokeless tobacco in India on periodontal health of smokeless tobacco users as compared with the non-tobacco users and to investigate the effect of their use on periodontal status in a Lucknow-based population where the practice using of smokeless tobacco is fast growing.

The effects of tobacco use on periodontium among the adults, as it has been seen that the use of any kind of tobacco started as early as 10 years of age. . According to Kumar *et al*.,[1] majority of smokeless tobacco users (60%) started consuming tobacco before 21 years of age and about 22% started before the age of 15 years. Peak incidence of tobacco consumption was observed in the age group between 21 and 30 years (635%) in this study.

Among the smokeless tobacco users, 145 subjects have been found to be associated with the habit of smokeless tobacco in the form of sachets . Similar observations were made by Bala *et al*.[2] who observed the use of *Paan masala* to be around four times higher in males as compared to females, whereas the consumption of tobacco was also observed to be more than twice amongst males as compared to females. In a study on tobacco use in rural area of Bihar, India, by Sinha *et al*.,[3] tobacco use was found to be 78% in men and 52% among women. The gender wise differences in tobacco use are dependent on the regional or local issues.

In the present study, higher prevalence of use of tobacco amongst males has been attributed to the fact that the concentration of economic power is in the hands of males and is also due to their proneness to stress situations and the assumption that tobacco use helps them to carry out their occupational tasks with more concentration. Based on this hypothesis, Chu *et al*.[4] evaluated the periodontal health status of male smokeless tobacco users population.

57.8% of the total participants are the "former smokeless tobacco users in the present study, but in contrast to the "replacement users" reported by Bergstrom *et al*.,[5] the present study does not reveal any such case. However, involuntary users (who do not consider themselves as tobacco users) represent 6.4% of the total population.

In the present study shows higher prevalence (92.2%)of either forms of tobacco consumption compared to other studies which found 27% and 18% in India. [6] This may be attributed to that the only subjects where maximum numbers of consumers were in the age group of 35-44 years. Due to the low cost of beedis, [7] beedi smoking (59.0%) was the most popular followed by cigarette consumption (41.0%). The rolling of beedis by local self-groups in rural areas may contribute to increased consumption due to easy accessibility.[8]

The study findings shows the linear relationship between the quantity of consumption of tobacco (chewing and

smoking tobacco) and occurrence of periodontal disease. Though, the previous studies shows the relationship between the prevalence of moderate to severe periodontal disease and smoking, but were unable demonstrate any risk estimates. [9]

Greater gingival inflammation was seen in smokeless tobacco users and alone smokeless tobacco users than non-tobacco users. These results are in contrast to report of Robertson *et al*.,[10] but similar to that of Chu *et al*.[11] The mechanism of action, as explained by Mavropoulos *et al*.,[12] was neurogenic inflammation induced by activation of sensory nerves and the subsequent release of vasodilatory peptides from their peripheral endings, known as "axon reflex".

Attachment loss is an important component of the periodontal disease measure that defines past history of the disease and is especially pertinent in the assessment of current exposure to tobacco. Present study revealed CPI of more than 5 mm in majority of smokeless tobacco users, followed by alone smokeless tobacco users, smokers alone and non-tobacco users. Similar trends were also seen amongst the mobility (score 3), furcation involvement (score 3), and presence of soft tissue lesion in the oral cavity, but furcation involvement of score 4 represented equal distribution amongst only smokeless tobacco users and smokers alone and was the highest in smokeless tobacco users. Chemical injury to thin areas of gingiva, chronically exposed to the smokeless tobacco, in addition to smokeless tobacco induced epithelial proliferation that bridges the narrow lamina propria of sites with an alveolar dehiscence might have resulted in loss of periodontal tissue.[13]

Present study is in confirmation with the already published data revealing the effect of snuff (smokeless tobacco) in European and American populations, that smokeless tobacco, used by the local population of Lucknow in various forms, is injurious to periodontal health.

Thus, periodontal health of the general population in the region of Lucknow required immediate attention as majority of subjects irrespective of their habit status had the onset of CAL and GR, more so amongst the users of non-smoking form of tobacco. The impact of smokeless form of tobacco use was significantly higher on all the periodontal health indicators, viz. Calculus, CAL, GR, mobility, furcation, lesion, PI, GI and PPD. Both duration and frequency of smokeless tobacco use significantly affected the periodontal health.

The results of present study can act as a motivation to the users of tobacco to quit

the habit of taking smokeless tobacco as well as various health agencies can be suggested to control the use of different forms of smokeless tobacco and smoked.

CONCLUSION:

Tobacco usage not only contributes to periodontal disease, but spurs the development of oral cancer, smoking cessation should be considered in the treatment of periodontitis and be a part of health prevention in dentistry.

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TABLES AND GRAPH:

Graph 1. Gender wise distribution of study population

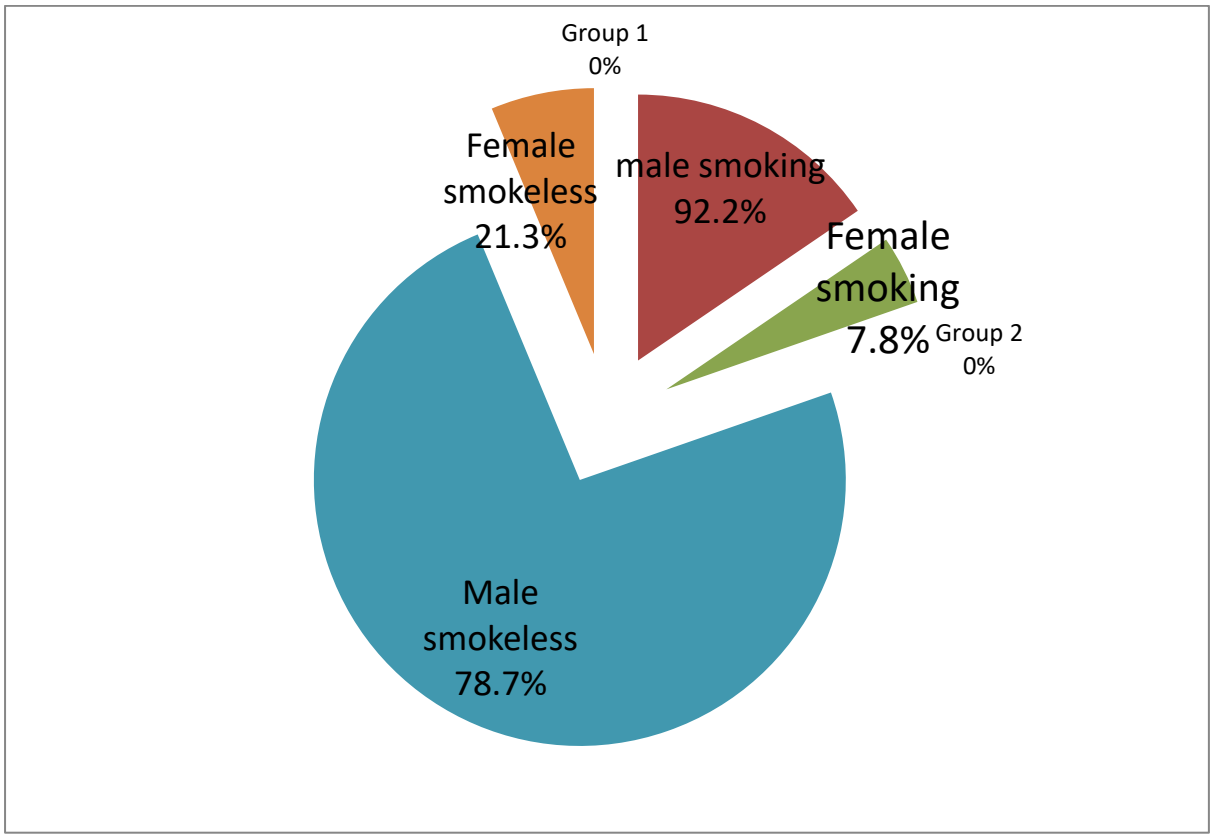

TABLE 1: Distribution of subjects according to Community Periodontal Index (C.P.I)

Group	Community periodontal index			Total
	1	2	3	
Smoking	8	29	10	47
	17.0%	61.7%	21.3%	100.0%
Smokeless	18	151	23	192
	9.4%	78.6%	12.0%	100.0%
Chi-Square value	5.832[a]			
P value	.054			

Table 2: Distribution of subjects according to Loss of attachment score.

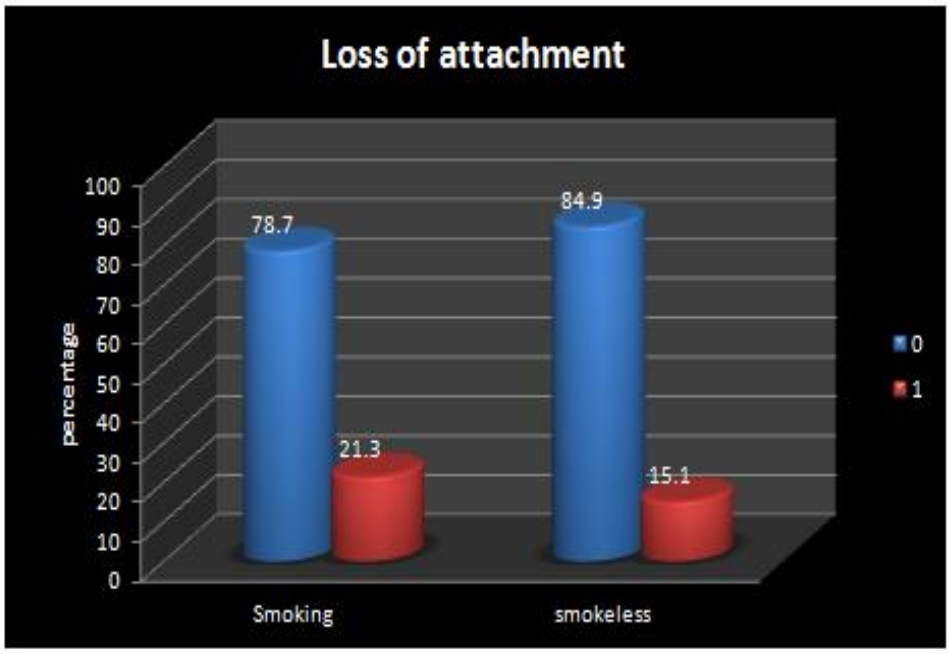

Table 3: Distribution of subjects according Gingival Index score.