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PREVALENCE OF ROOT CARIES AMONG CIGARETTE SMOKERS PRESENTING TO LIAQUAT UNIVERSITY HOSPITAL

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Abstract:

This cross-sectional, observational analysis was carried out at the Dept. of Dentistry at Liaquat University Hospital, Jamshoro from January 2018 to July 2018 on a sample of 377 smokers, aged 28 to 64 years (chosen via non-probability, consecutive sampling) presenting to the study setting. After taking written informed consent from the study subjects, data was collected using a pre-structured, interview-based questionnaire containing inquiries about basic sociodemographic details, lifestyle and eating and oral hygiene habits, history of smoking and self-reported presenting complaints. Routine oral examination was conducted with special emphasis to look for dental root caries. The data obtained was analyzed using MS. Excel 360 and SPSS v. 21.0. A total of 377 smokers were enrolled during the study duration. The mean age of sample stood at 47 years (SD ±7.5) and most of the subjects (71.35%) were males. 53.58% of the subjects had caries, among which 81 were root caries and the remaining 121 were others. 21 subjects has previously underwent restorative treatment, while the remaining 181 had untreated caries. 19 subjects had root caries on less than 2 surfaces; 54 subjects had root caries on 3-5 surfaces and there were 8 subjects with more than 5 carious surfaces. Xerostomia was observed in 57 subjects. After carefully considering the results, it can be concluded that the there is a high prevalence root among smokers. Very few (10.4%) subjects had previously sought treatment and even fewer practiced necessary precautions or indulged in good oral hygiene behavior. Despite the dismal oral health condition, very few showed intentions of smoking cessation.

Keywords: *Dental Caries, Root Caries, Oral Hygeine, Cigarette Smoking & Xerostomia*.

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INTRODUCTION:

Root caries has become an important dental problem worldwide. As the mean global age around the increases, more people grow older, their gums recede and root surface are exposed. The root exposure makes the surface susceptible to caries. Furthermore, the prevalence of gingival recession, xerostomia and other risk factors such as tobacco use leads to a high susceptibility to root caries. [1]

Preventive measure that includes proper oral hygiene, plaque control, fluoride therapy, abstinence from tobacco use and smoking cessation are seldom properly employed by the patients. Tobacco use is a risk factor for oral disorders and diseases including changes in bacterial ecology and overall plaque increase. Prior research also reports a significant relationship between smoking and dental caries, using large sample sizes. [2]

Cigarette smoking causes both clinical and subclinical changes. Intraorally, smoking causes xerostomia, and xerostomia has a well-documented relationship to caries. Further, studies suggest that smoking could potentiate caries lesions via suppression of ascorbic acid. [3] In the Finnish Healthy Village Study of adults, Vaananen et al. (1994) [4] found that there was a significant difference between the study group (with low levels of plasma ascorbic acid) and the control group (with higher levels of plasma ascorbic acid) in the prevalence of caries lesions.

It has been suggested, on the basis of information such as above that caries experience increases in smokers, but there is no consistent pattern in reports. Cigarettes, cigars, and pipe tobacco are the usual forms of tobacco smoking. Cigarettes are the widely used tobacco products, which are often smoked globally. [5]

Across the world, about 1.1 billion adults (29% of the adult population) are cigarette smokers. Owing to such widespread use, according to currently available records, approximately 5 million people are under the direct adverse influence of continued tobacco use. Furthermore, it is assumed that this number would increase to 10 million by the year 2030, with 70% of deaths occurring in low- and middle-income countries. [6] The need to study the harmful effects of smoking is thus higher now than ever before.

Various studies had reported tobacco smoking as a risk factor for periodontal disease and increased tooth loss. Previous studies reported that with the number of cigarettes smoked per day and the duration of years, they noticed a relationship between the prevalence and severity of periodontal disease. [7]

Dental caries is a poly-microbial disease caused by various associations and is not infectious. It is considered a diet and pH-dependent process due to the acid demineralization of the tooth enamel by sugar-fermenting microorganisms. [8] The data on dental caries prevalence in tobacco smokers is scarce. The literature discusses both the increased and decreased prevalence of dental caries in tobacco users. [9, 10] This study hopes to probe this matter and offer valuable data that may serve as a basis for future interventional research.

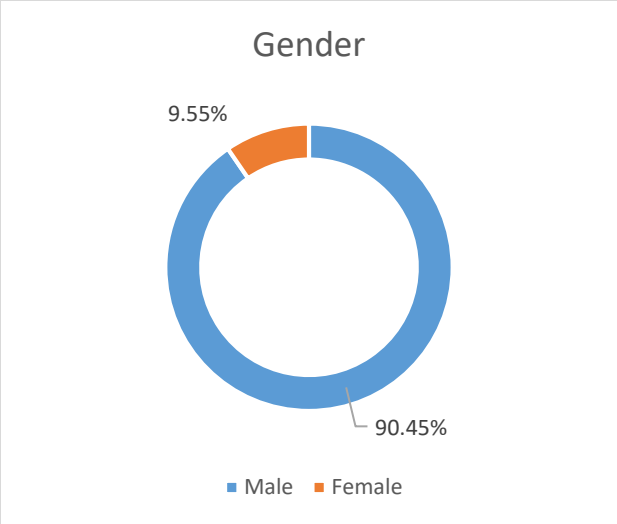
METHODOLOGY:

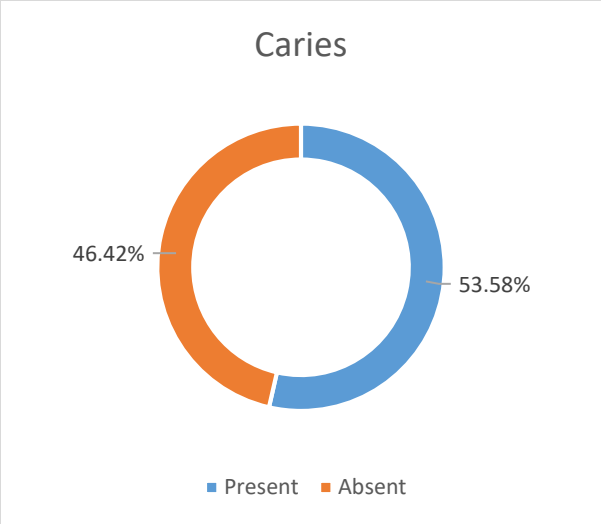
This cross-sectional, observational analysis was carried out at the Dept. of Dentistry at Liaquat University Hospital, Jamshoro from January 2018 to July 2018 on a sample of 377 smokers, aged 28 to 64 years (chosen via non-probability, consecutive sampling) presenting to the study setting. After taking written informed consent from the study subjects, data was collected using a pre-structured, interview based questionnaire containing inquiries about basic sociodemographic details, lifestyle and eating and oral hygiene habits, history of smoking and self-reported presenting complaints.

Routine oral examination was conducted with special emphasis to look for dental root caries. The caries were said to be root caries when lesion was predominantly on the root [wholly on the root surface or at the cemento-enamel junction], or that at least half the lesion was on the root and the origin of the lesion appearing to be on the root. The data obtained was analyzed using MS. Excel 360 and SPSS v. 21.0.

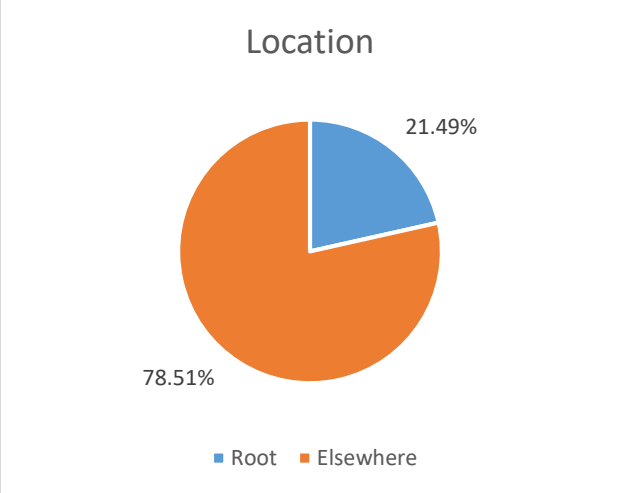
RESULTS:

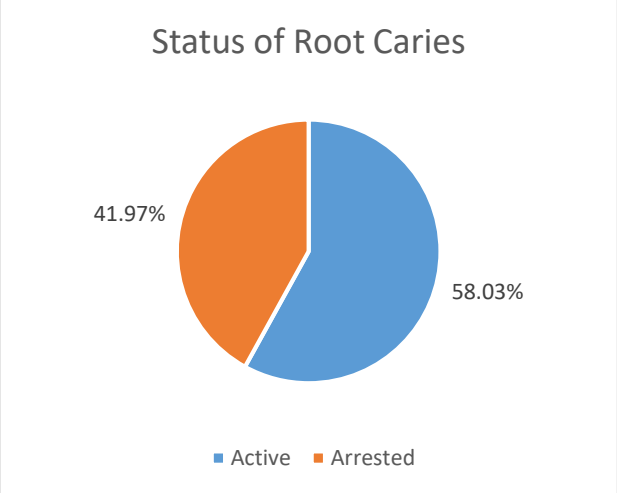
A total of 377 smokers were enrolled during the study duration. The mean age of sample stood at 47 years (SD ±7.5) and most of the subjects (90.45%) were males. 53.58% of the subjects had caries.





Among the individuals with caries, 81 were root caries and the remaining 121 were present on locations other than the root. 21 subjects has previously underwent restorative treatment, while the remaining 181 had untreated caries. Most of the root caries (47) were active, while the remaining (34) were arrested.





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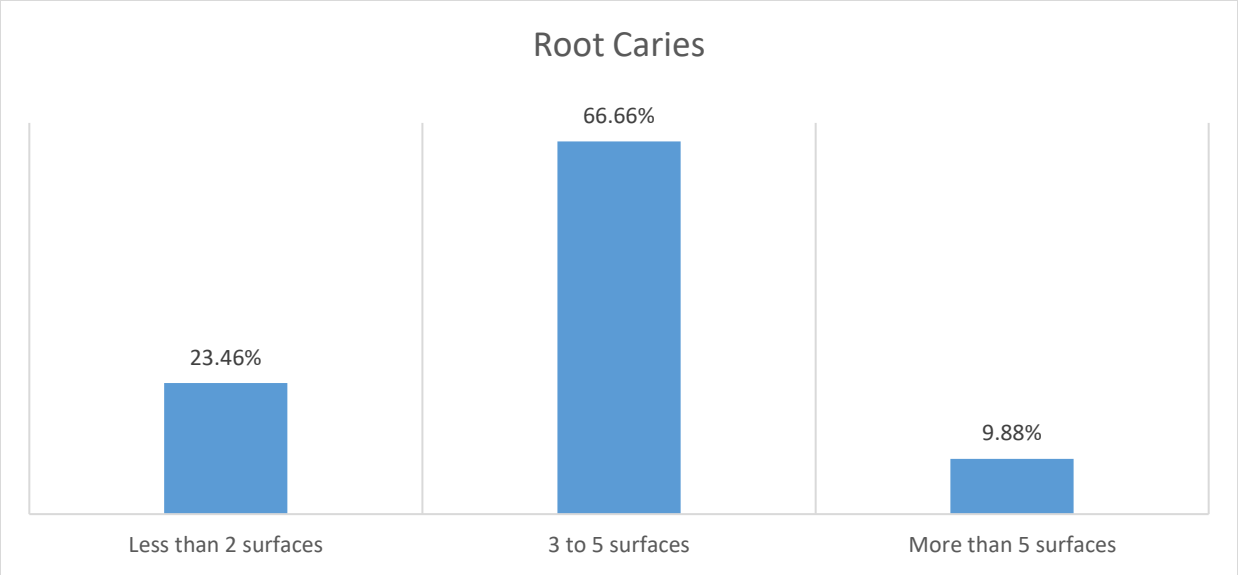

DISCUSSION:

Smoking and its relation to dental caries is a subject of many opinions. From early reports in literature and a common belief was that smoking actually helps to reduce dental caries. [11] Schmidt, in 1951, supported this belief when he reported that increase in tobacco smoking was followed by a decrease in caries rate. [12] The concentration of thiocyanate, a constituent of tobacco smoke and normal saliva with possible caries-inhibiting effect, was found to be higher in smoker's saliva. So, one might predict less dental caries in smokers.

On the other hand, the decreased buffering effect and possible lower pH of smoker's saliva and the higher number of Lactobacilli and Streptococcus mutans may indicate an increased susceptibility to caries. [13] In addition, results also showed no significant differences in salivary flow rates between smokers and non-smokers. [14]

To date, quite a few investigators have discovered a correlation between elevated smoking level and dental caries. [15] For example, in 1952, Ludwick and Massler reported that those who smoked more than 15 cigarettes a day had significantly higher number of decayed, missing, and filled teeth. [16] In 1971, Ainamo found that increased smoking resulted in significantly higher number of decayed surfaces per dentition and also noted a trend toward more missing surfaces and fewer restored surfaces in subjects with a high consumption of cigarettes. [17]

In 1990, Zitterbart confirmed association between smoking and the prevalence of dental caries in adult males. Smokers had significantly higher DMFT (Decayed, Missing, and Filled Teeth) score, untreated decayed surfaces, and missing surfaces. He further correlated that more cigarettes consumed per day resulted in more missing tooth surfaces in a smoker's mouth. [18]

A Swedish study carried out in 1991 shows that smoking, as a habit and an increased number of cigarettes smoked per day, are positively correlated with increased in number of decayed, missing and filled teeth. [19] Even though a recent study done on American female population in 2006 did not establish a causative relationship, cigarette smoking was shown to be associated with the prevalence of caries. [20]

Studies in this regard have considered multiple variable factors which can contribute directly or indirectly to the increase in the incidence of dental caries in smokers such as age, tobacco habits other than smoking, oral hygiene habits, eating habits, drinking habits, preventive visits to dentist and overall health standards. Due to these factors, it is difficult to conclude the association between solitary positive factors which can cause increase in caries incidence in smokers, therefore, it is not easy to establish the strength of relationship between smoking and dental caries.

CONCLUSION:

After carefully considering the results, it can be concluded that the there is a high prevalence root among smokers. Very few (10.4%) subjects had previously sought treatment and even fewer practiced necessary precautions or indulged in good oral hygiene behavior. Despite the dismal oral health condition, very few showed intentions of smoking cessation.

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