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RELATION BETWEEN PERIODONTITIS AND CIGARETTE SMOKING IN PAKISTAN

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Abstract:
Objective: The aim of this study was to determine the relationship between periodontitis and smoking in patients admitted to a dental care hospital.
Study design: A cross-sectional comparative study.
Location and duration: In the Dental department of Services Hospital, Lahore for six month duration from January 2018 to June 2018.
Methods: A total of 200 patients (100 non-smokers and 100 smokers) were included in the study. The subjects were evaluated clinically by determining the depth of catheterization, dental mobility, clinical attachment level (CAL) and the role of bifurcation between the two groups.
Results: There was a significant relationship between smoking and periodontitis. In smokers, the average detection depth was found to be 3.56, the mean for non-smokers were 3.09. The average mobility of tooth in nonsmokers and smokers was 0.31 and 0.18 in non-smokers.
Conclusion: There was a remarkable relationship between periodontitis and smoking. The analysis results show that smokers have more extensive clinical attachment level, increase depth of probing, more dental mobility and furcation disorder in smokers.
Key words: *smoking, periodontitis, clinical location, probing depth, dental mobility.*

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INTRODUCTION:

The leading etiology of tooth loss globally is periodontal disease. The main reason of periodontitis is a long-term infection caused by bacteria. In addition, periodontitis has many risk factors that may enhance the disease severity caused by smoking. Smoking is harmful to health and is pollution causing global warming. Periodontitis is the outcome of bacterial aggregations on the tooth surface which cause a host response. The result is destruction of connective tissue union which is irreversible leading to periodontal pockets and alveolar tip loss. Disruptive periodontitis is defined as a result of the interaction of environmental, genetic, host factors and microbial factors interaction. The periodontitis risk factors include gender, age, genetic predisposition, socioeconomic status, specific systemic conditions colonization and smoking. Oral hygiene has been systematically determined by cross-sectional studies that have a strong impact on periodontal health. The important risk factor for periodontitis is Smoking. Deeper depth (PD) drills, more insertion loss and more alveolar bone loss in smokers than non-smokers is proven by various studies. In tobacco smoke, nicotine and carbon monoxide adversely affect healing of wound. In peripheral blood vessels, vasoconstriction may be due to Nicotine and therefore may decrease the gingivitis clinical signs. Induced vasoconstriction may contribute to altering blood flow to the gum and reducing the content of blood components and oxygen reaching the gum. Nicotine metabolites are concentrated in periodontal tissues and can have local effects and may also affect the host's systemic response. Smoking affects the bone tissue and its mineral content. Progressive bone loss is more prominent. In smokers, treatment resulted in a lower reduction in the depth of catheterization and a lower improvement in clinical together (CAL). In addition, smokers have increased risk of disease recurrence in the periodontal care treatment compared to nonsmokers. The aim of this study was to know the effect of smoking on periodontal health in a comparative cross-sectional study in Pakistani population in small group of population.

MATERIALS AND METHODS:

This cross-sectional comparative study was held in the Dental department of Services Hospital, Lahore for six month duration from January 2018 to June 2018. 100 of the 200 patients were smoking and 100 of them were non-smokers. The age limit was 19-61 years, including men and women. Both non-smokers and Smokers were examined. Smokers smoked at least 10 cigarettes a day for minimum 5 years. Group B (smokers) and Group A non-smokers included. In the past patients who smoked were excluded. Medical complications, such as phenytoin, cyclosporine, nifedipine, cardiovascular disease or other conditions requiring prophylactic antibiotics for rheumatic fever, patients who used any drug that could affect the pregnancy period, were not selected for the study. Smoking and non-smokers who were informed about the study and informed consent and exclusion criteria were reported. Periodontal probe with a length of 12 mm to detect the level of clinical tooth root attachment and discovery depth (pocket) along the surface of the color areas of the dental medullary duration of multiple coded points. Dental mobility was confirmed using the tooth mirror handle and finger and classified accordingly. Measurements were performed using three periodontal probes coded in Marquis Colors in three regions: tooth, middle, middle and middle. Demographic data were obtained. Data were analyzed in SPSS 18.0 computer program.

RESULTS:

The study population mean age was 40.53 ± 8.93 and the mean age of non-smokers was 38.71 ± 11.97 years. Most of the patients were male. 4 women only were smoking. Two age groups were evaluated. One group was <38 years of age and the second group was over 41 years of age (Table-1). 39.96 ± 11.93 was the average age. There was no statistically significant difference between the two age groups (p <0.161).

TABLE 1: AGE AND GENDER DISTRIBUTION

	Smoking Status		Total	P value
	Smoker	**Non smoker**		
Age in groups				
≤39	47	55	102	
≥40	53	45	98	0.16
Gender				
Male	96	68	164	
Female	4	32	36	0.000

Most subjects smoked less than 10 or 10 cigarettes per day (Figure 1). Many people (66%) brushed their teeth once a day (Figure-2).
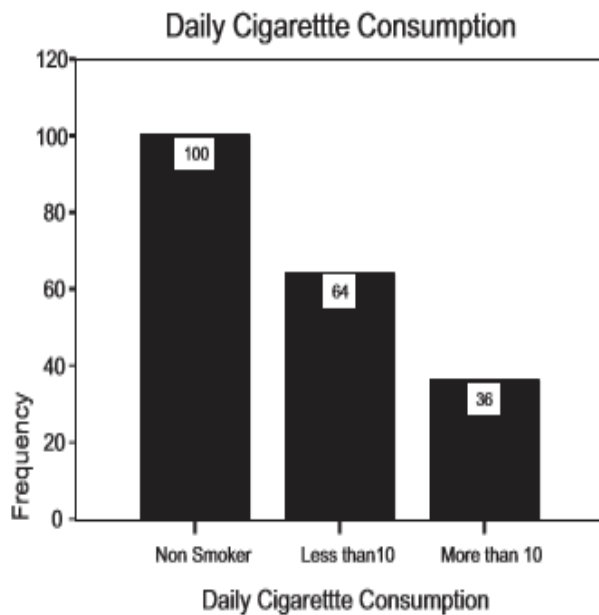

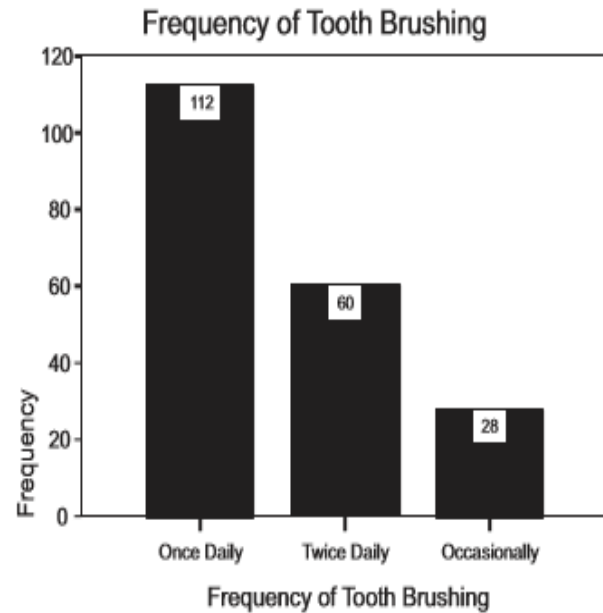Fig 1: Frequency of Daily Cigarette Consumption

Fig 2: Frequency of Tooth Brushing

There were only a few non-smoker periodontitis. There were more than 10 cigarettes and periodontitis in many daily use (p <.004) (Table-2).

TABLE: 2: PATIENT DEMOGRAPHIC CHARACTERISTICS

		No Periodontitis	Periodontitis	Total	%	P Value
Age	≤39 years	85	17	102	51%	
	≥40 years	67	31	98	49%	0.010
Gender	Male	120	44	164	82	
	Female	32	4	36	18	0.032
Socioeconomic Status						
	Average	113	27	140	70%	
	High	39	21	60	30%	0.015
Years smoking						
	No	84	16	100	50%	
	10 years	44	10	54	27%	
	15 years	24	10	34	17%	
	20 years	–	12	12	6%	0.000
Daily cigarette consumption						
	No	84	16	100	50%	
	<10 per day	48	16	64	32%	
	>10 per day	20	16	36	18%	0.004
Frequency of tooth brushing						
	Once daily	88	24	112	66%	
	Twice daily	40	20	60	30%	
	Occasionally	24	4	28	14%	0.095
Dental care visits						
	Six monthly	22	6	28	14%	
	Once a year	80	16	96	48%	
	Occasionally	50	26	76	38%	0.028

30% had the habit of cleaning teeth twice a day. 14% brushed their teeth from time to time (p <0.002). There was a significant relationship between people who smoked less or more cigarette on peridontal health (p <0.000) (Figure 4).
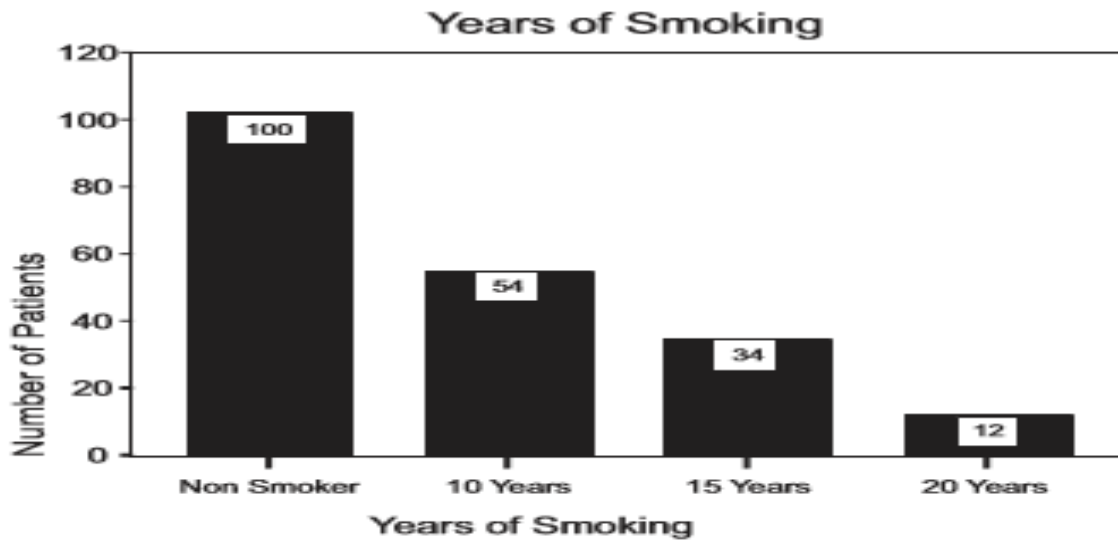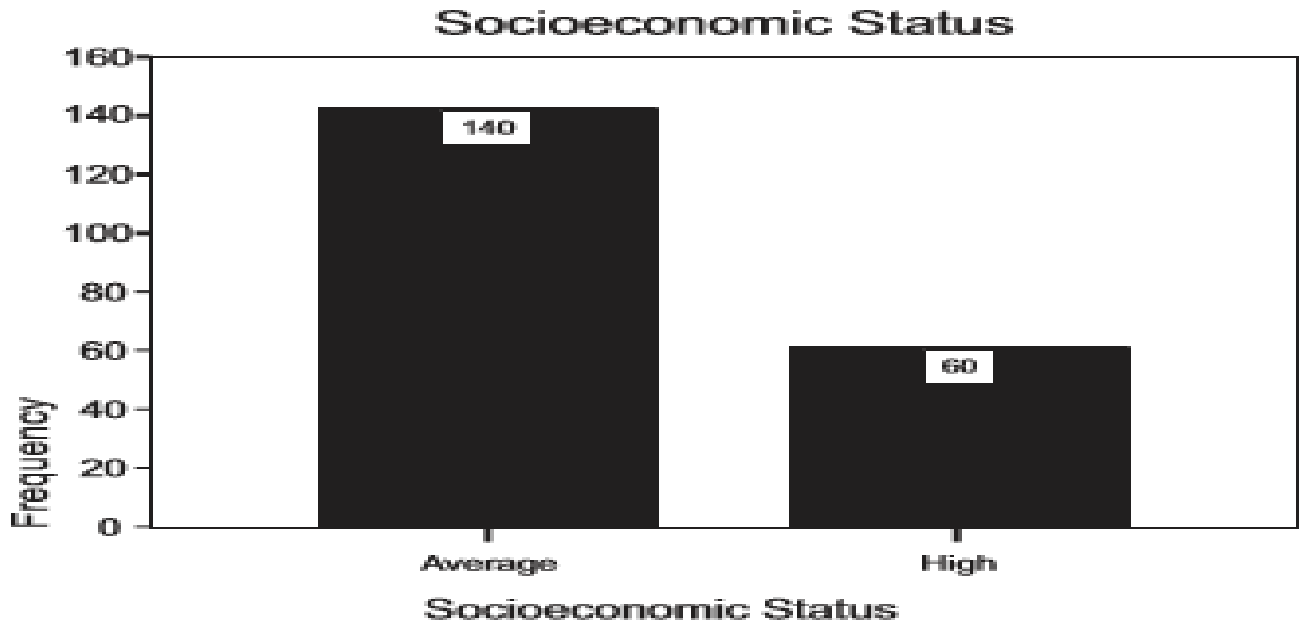

Fig 4: Frequency of Years of Smoking

71% of the volunteers belonged to the mean category with no obvious periodontitis relation between the mean and

the high group (p <0,016) (Figure 5).

Fig 5: Socioeconomic Status

The clinical parameters of the patients were evaluated by status of smoking (Table 3).

TABLE: 3: RELATIONSHIP OF PATIENT CLINICAL MEASUREMENTS WITH SMOKING STATUS

	Smoking Status		Total	%	P Value
	Smoking	Non smoking			
Probing depth					
<4mm	68	84	152	76%	0.006
≥4mm	32	16	48	24%	
Tooth mobility					
No	72	83	155	77.5%	
Grade 1	24	17	41	20.5%	
Grade 2	4	–	4	2%	0.023
Furcation Area Involvement					
No	72	86	158	79%	
CL I	20	14	34	17%	
CL II	8	–	8	8%	
CL III	–	–	–	–	0.001
Clinical attachment level					
0.5-<2.0	25	40	65	32.5%	
2.0-<3.0	40	41	81	40.5%	
3.0-≤4.0	35	19	54	27%	0.011

The relationship between clinical parameters was also evaluated with periodontal status (Table 4 and 5). 25% of the subjects had periodontitis with deep drilling depth,> 4 mm (p <0.000). Up to 2 mm of CAL, no periodontitis. There was periodontitis between 3.0 - <4.0 mm CAL 1 and periodontitis between 4.0 -> 5.0 mm CAL 46 (p <.000). Most of the individuals with grade I and grade II mobility presented with periodontitis (p <.000).

TABLE: 4: RELATIONSHIP OF PATIENT CLINICAL MEASUREMENTS WITH PERIODONTAL STATUS

	Periodontal Status		Total	%	P Value
	No Periodontitis	Periodontitis			
Probing depth					
<4mm	152	–	152	76%	
≥4mm	—	48	48	24%	0.000
Tooth mobility					
No	143	12	155	77.5%	
Grade 1	9	32	41	20.5%	
Grade 2	–	4	4	2%	0.000
Furcation Area Involvement					
No	143	15	158	79%	
CL I	9	25	34	17%	
CL II	–	8	8	8%	
CL III	–	–	–	–	0.000
Clinical attachment level					
0.5-<2.0	65	0	65	32.5%	
2.0-<3.0	79	1	80	40.0%	
3.0-≤4.0	8	47	55	27.5%	0.000

DISCUSSION:

This study was performed to compare periodontal clinical parameters and demographic graph between non-smokers and smokers. Our study analysis showed that there was a strong relationship between periodontitis and smoking when compared with non-smoking. In our study, it was found that most of the smokers had clinical periodontal caries, scans, CAL, bifurcation and teeth mobility. The difference between smokers and nonsmokers was significant statistically ($p < 0.05$). This study is related with the results of many studies on epidemiology with periodontitis and cigarette smoking, including transverse cases and longitudinal studies in a strong association between periodontitis and smoking. Although these studies have been used in a wide range of analysis in different populations of disease, they have reported a very strong, moderate and moderate degree in terms of smoking and periodontitis and dose rate. In addition, recent reviews in the literature have concluded that it is an important risk factor for the initiation or progression of smoking in humans and animals or in vitro studies that outline these and other epidemiological studies and clinical studies. In this study, clinical parameters were obtained from the contralateral edges of the mouth. All oral examinations require a lot of time, while providing a better presentation for the degree and severity of periodontitis. The association between sociodemographic variables and periodontitis such as gender, age, socioeconomic status, frequency of tooth brushing, dental care visits and daily smoking was consistent with previous cross-sectional studies. The association between periodontitis and smoking was weaker than noted in other analysis. In our study, we used a younger group than other studies, because we were mostly military personnel serving between 18 and 60 years of age. In Saudi Arabia, Natto and Mustafa conducted a study to reveal the harmful effects of tobacco use on periodontal health. The relationship between smoking habit and the depth of the questionnaire was statistically significant ($p < 0.001$).

CONCLUSION:

The study showed significantly more defects of molar teeth. In our study, the incidence of furcation increased significantly in smokers compared to non-smokers ($p < 0.001$). Class II furcation cases were observed only in smokers.

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