

## ORIGINAL ARTICLE

**Periodontal Treatment Needs of Smokers in Comparison to Non-Smokers: A Comparative Study**NIDA AYUB<sup>1</sup>, KHALFAN HAIDER<sup>2</sup>, LAIBA AMER<sup>3</sup>, ASMA SHAKOOR<sup>4</sup>, SALMAN AZIZ<sup>5</sup>, RABEEA YAQOOB<sup>6</sup>, HIRA BUTT<sup>7</sup><sup>1</sup>Post-graduate resident, Periodontology department, Institute of Dentistry, CMH Lahore Medical College, National University of Medical Sciences, Pakistan. (NUMS)<sup>2</sup>Post-graduate resident, Periodontology department, Institute of Dentistry, CMH Lahore Medical College, National University of Medical Sciences, Pakistan. (NUMS)<sup>3</sup>General dental practitioner, Lahore<sup>4</sup>Associate professor, Community and preventive Dentistry, CMH-Lahore Medical College and Institute of Dentistry, National University of Medical Sciences, Pakistan. (NUMS)<sup>5</sup>Associate professor, Department of Dental Materials, CMH-Lahore Medical College and Institute of Dentistry, National University of Medical Sciences, Pakistan. (NUMS)<sup>6</sup>Demonstrator, Department of Community and Preventive dentistry, Jinnah Medical and dental college, Karachi<sup>7</sup>Demonstrator, Oral Pathology department, College of dentistry, Sharif Medical and Dental College, LahoreCorresponding author: Hira Butt, Email: [hira.ah.butt@gmail.com](mailto:hira.ah.butt@gmail.com), Cell: 0336-7160357**ABSTRACT****Objective:** To assess the periodontal treatment needs of smokers in comparison to non-smokers.**Methodology:** A Cross sectional comparative study was carried out on 100 patients, 50 smokers and 50 non-smokers, visiting Sharif Medical and Dental College, Lahore from June 2019 to July 2020. Intra-oral examination was done using the Community Periodontal Index of Treatment Needs (CPITN). Recorded data was coded, entered and analyzed using SPSS statistical Package version 23.**Results:** Majority of the smokers and non-smokers (100%) required oral hygiene instructions and had periodontal treatment needs (TN<sub>1</sub>). It was seen that a higher percentage of smokers (92%) required Scaling and prophylaxis and Oral hygiene instructions (TN<sub>2</sub>) in comparison to non-smokers (36%). It was seen that 26 % smokers and none of the non-smokers required complex treatment, scaling, prophylaxis and oral hygiene instructions (TN<sub>3</sub>).**Conclusion:** Majority of the smokers and non-smoke required oral hygiene instructions and had periodontal treatment needs (TN<sub>1</sub>). A higher percentage of smokers required Scaling and prophylaxis and Oral hygiene instructions (TN<sub>2</sub>) as well as complex treatment, scaling, prophylaxis and oral hygiene instructions in comparison to non-smokers**Keywords:** Periodontal treatment needs, smokers, non-smokers, Community periodontal index of treatment needs (CPITN).**INTRODUCTION**

The current smokers have been defined as individuals who have smoked more than 100 cigarettes in their lifetime and are also currently smoking, whereas non-smokers are those who have not smoked more than 100 cigarettes in their lifetime and currently do not smoke(1).

According to estimates, smokers have an odds ratio for periodontitis that can vary from 1.5 to 7.3 when compared to nonsmokers.(2) After accounting for factors such as age, gender, race/ethnicity, education level, and income/poverty ratio, smokers were found, on average, four times more likely to develop periodontitis than non-smokers(3). Numerous studies have shown that smokers have higher prevalence and severity of alveolar bone loss, attachment loss, and pocket depth than non-smokers. (3, 4)

Periodontal diseases have long been studied by researchers, and many indices were developed in the process. Since 1969, the World Health Organization (WHO) has used several methods to gather data on periodontal diseases, namely the periodontal index of Russell and the simplified oral hygiene index but more recently these have been replaced by the community periodontal index of treatment needs (CPITN) (5). The CPITN technique of evaluating periodontal status, adopted by the WHO, offers consistent and comparable measures of treatment requirements, allowing use by health planners and population comparisons(6). The aim of this study was to assess the periodontal treatment needs of smokers in comparison to non-smokers.

**METHODOLOGY**

A Cross sectional comparative study was carried out on 100 patients, 50 smokers and 50 non-smokers, visiting Sharif Medical

and Dental College, Lahore from June 2019 to July 2020. The study was conducted after ethical approval from Sharif Medical Research Centre (SMRC). The sample size was calculated keeping the prevalence of periodontitis in smokers to be 96.7%, precision 5% and 95 % confidence level, the sample size was calculated to be 5015. The study was conducted on 100 patients, 50 smokers and 50 non-smokers. The sampling technique used was non- probability convenience. All smokers 18 years of age and above irrespective of their gender were included in the study. Smokers with any systemic illness were excluded from the study. Inclusion criteria for non-smokers was all individuals 18 years of age and above irrespective of their gender. Exclusion criteria for non-smokers was presence of any systemic illness. Informed consent was taken from the participants. Intra-oral examination was done using the Community Periodontal Index of Treatment Needs (CPITN). Recorded data was coded, entered and analyzed using SPSS statistical Package version 23.0. Numeric data was presented as mean and its respective standard deviation. Nominal data was presented as frequency and percentages.

**RESULTS**

A cross sectional comparative was done on 50 smokers and 50 non-smokers with a mean age of 33.36±14.117 years out which 62% were males while 38% were females.

Table 1 shows that none of smokers and non-smokers had healthy periodontium. It was seen that a higher percentage of non-smokers had bleeding gums in comparison to smokers. The non-smokers also had a more calculus deposition in comparison to smokers. Periodontal pocket depths 4-5mm and 6mm or more were more in smokers while none of non-smokers had them as shown in table 1

Table 1: Percent person affected smokers in comparison to non-smokers

Age	No of patients examined	Group	Percent person affected				
			Healthy	Bleeding	Calculus	Pocket depth 4-5 mm	Pocket depth 6mm or more
33.36±14.117 years	50	Smokers	0%	8%	28%	38%	26%
	50	Non-Smokers	0%	64%	36%	0%	0%

Table 2 shows that majority of the smokers and non-smokers (100%) required oral hygiene instructions and had periodontal treatment needs (TN1). It was seen that a higher percentage of smokers required Scaling and prophylaxis and Oral hygiene instructions (TN 2) in comparison to non-smokers. It was seen that smokers and none of the non-smokers required complex treatment, scaling, prophylaxis and oral hygiene instructions (TN<sub>3</sub>) as shown in table 2.

Table 2: periodontal treatment needs of smokers in comparison to non-smokers

Age	Group	Periodontal treatment needs			
		%TN 0	% TN 1	% TN 2	%TN 3
33.36±14.117 years	Smokers	0%	100%	92%	26%
	Non-Smokers	0%	100%	36%	0%

**DISUCSSION**

Periodontal health is at the cornerstone of preserving dentition, maintaining proper function and esthetics in an individual. However, periodontal disease has been recognized as the 11th most prevalent condition in the world(7).

Periodontitis is a multifactorial disease(8), causing the inflammation of gingiva and the surrounding attachment apparatus and supporting bone. Amongst numerous other risk factors for developing periodontal disease, smoking is considered the most significant, second only to poor oral hygiene(9). Moreover, in the recent 2018 classification of Periodontal and Peri-Implant Diseases, smoking was identified as a grade modifier for periodontitis in the new staging and grading framework for periodontitis(10-12).

According to our study none of smokers and non-smokers had healthy periodontium. It was seen that a higher percentage of non-smokers had bleeding gums (64%) in comparison to smokers (8%). The none-smokers also had a more calculus deposition (36%) in comparison to smokers (28%). Periodontal pocket depths 4-5mm and 6mm or more were more in smokers (38% and 26% respectively) while none of non-smokers had them.

Researchers in the past have suggested that smokers had a higher prevalence and severity of periodontal disease due to the presence of more plaque and calculus than nonsmokers(13, 14). Evidence shows, however, that the impact of smoking on periodontal health is independent of an individual's plaque index and dental hygiene(15). Smoking acts on the periodontal tissues by causing gingival vasoconstriction, alterations in the gingival microbiological ecosystems, and impacting the inflammatory and host responses, all of which cause periodontal tissues to become distressed(16-18).

While there is an elaborate data on the periodontal health of smokers and non- smokers, there is not enough literature that reports the periodontal treatment needs of smokers and non-smokers. Our study took into consideration their various periodontal treatment needs. According to our study majority of the smokers and non-smokers (100%) required oral hygiene instructions and had periodontal treatment needs (TN1). It was seen that a higher percentage of smokers (92%) required Scaling and prophylaxis and Oral hygiene instructions (TN 2) in comparison to non-smokers (36%). It was seen that 26 % smokers

and none of the non-smokers required required complex treatment, scaling, prophylaxis and oral hygiene instructions (TN<sub>3</sub>).

The results of our study will help highlight the different periodontal treatment needs of smokers and will help dental practitioners identify the severity and extent of the oral health care that should be provided to these patients.

**Limitation:** A larger sample size and multicenter study would have helped us unravel more findings.

**CONCLUSION**

Majority of the smokers and non-smoke required oral hygiene instructions and had periodontal treatment needs (TN1). A higher percentage of smokers required Scaling and prophylaxis and Oral hygiene instructions (TN 2) as well as complex treatment, scaling, prophylaxis and oral hygiene instructions (TN<sub>3</sub>) in comparison to non-smokers.

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