ORIGINAL RESEARCH

Knowledge and awareness of periodontal diseases among dental students: A cross-sectional study

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ABSTRACT

Background: To assess the knowledge and awareness of periodontal diseases among dental students. **Materials & methods:** The majority of students stated that they maintain regular toothbrushing habits, either once, twice, or more daily. Only a small percentage (1.5%) admitted to never cleaning their teeth. Moreover, more than half of the respondents (50%) expressed the belief that it is necessary to visit the dentist when experiencing gum bleeding. **Results:** A total sample of 200 students aged 18-25 years were enrolled. The questionnaire was distributed. The data was obtained and analyzed using the Statistical Package for the Social Sciences (SPSS) software version 11.0. Subgroup comparisons were performed using the Chi-square test, and statistical significance was set at $P \leq 0.05$. **Conclusion:** Dental students moderately knew about effects of smoking on healing of periodontal diseases and knowledge about etiology was moderate.

Keywords: Students, knowledge, periodontal disease.

INTRODUCTION

Oral health is an important and integral part of general health. [1,2] The impact of oral health-related problems, with special emphasis to periodontal health, has been well documented in scientific literature. [3,4]

Periodontal disease is a predominantly Gram-positive infection which is inflammatory in nature. It is initiated by plaque biofilm resulting in gingivitis, which may progress to periodontitis and eventually tooth loss if left untreated. Periodontal disease is known to have bilateral associations with various systemic diseases such as diabetes mellitus, cardiovascular disease, hypertension, and poor pregnancy outcomes. [4] Periodontal disease is any disease that affects one or more components of the periodontium which includes gingiva, periodontal ligament, cementum, and alveolar bone. [5,6] Periodontal disease as a chronic disease is a growing burden to people, healthcare systems, and societies across the world. [7] It constitutes one of the major global oral health burdens and it is a significant cause of tooth loss, representing full and partial edentulism in 5–20% of the adult population worldwide. [8] Periodontal disease is highly prevalent and a costly to treat condition that impacts on quality of life. [7] Periodontal disease which manifests as gingival bleeding, swelling, food packing, pains, irritations, and discomfort, can affect any individual irrespective of age, gender, race, and place of residence to a variable extent and severity. It is known to be the more common and more severe in older individual especially those over 40 years, males, Negroid race, rural dwellers and residents of developing countries. [9,10]The World Health Organization reported that most children and adolescents exhibit signs of mild periodontal disease in the form of gingivitis, while 5–20% of adult populations experience severe periodontal disease in the form of severe periodontitis. [8]

Chronic periodontitis (CP) is an inflammatory disease initiated by bacterial pathogens and affected by environmental, physical, social, and host stresses which may modify disease expression through a multitude of pathways. It is a highly prevalent public health problem, contributing to the global burden of chronic diseases. [11] Periodontitis may be a source of systemic inflammation that impacts overall health. [12] Hence, this study was conducted to assess the knowledge and awareness of periodontal diseases among dental students.

MATERIALS & METHODS

A total sample of 200 students aged 18-25 years were enrolled. The questionnaire was distributed. Verbal consents were obtained. The questionnaire included multiple-choice and a few open-ended questions covering oral hygiene practices, dental visits, knowledge and awareness about periodontal diseases, the impact of smoking on periodontal disease healing, and the effects of proper conventional treatment. The participants took approximately 5-10 minutes to complete the questionnaire. The data was obtained and analyzed using the Statistical Package for the Social Sciences (SPSS) software version 11.0. Subgroup comparisons were performed using the Chi-square test, and statistical significance was set at $P \leq 0.05$.

RESULTS

The majority of students stated that they maintain regular toothbrushing habits, either once, twice, or more daily. Only a small percentage (1.5%) admitted to never cleaning their teeth. Moreover, more than half of the respondents (50%) expressed the belief that it is necessary to visit the dentist when experiencing gum bleeding.

Table 1: Oral hygiene practices in study sample

Variables	Number of times of brushing			P –value
	No brushing, n (%)	<1 daily	1-3 daily	
Gender				
Male	8 (10)	15 (18.7)	57(71.25)	0.001 (Significant)
Female	2 (1.6)	10 (8.4)	108 (90)	
Residency				
Urban	3(3.75)	5 (6.25)	72 (90)	0.00 (Significant)
Rural	10 (8.4)	14 (11.7)	96 (80)	

Table 2: Oral hygiene practice and dental visits

Variable	N (%)
Number of times brushing	
No	3 (1.5)
<1 time	6(3)
1-3 times daily	191 (95.5)
Dental visit if gums bleed?	
Yes	100 (50)
No	75 (37.5)
Do not know	25 (12.5)

Approximately 75% of students demonstrated awareness that chronic periodontal diseases can lead to teeth mobility and subsequent early tooth loss due to advanced bone loss caused by inflammation. Significantly, a higher percentage of female students (79.2%) showed awareness of this fact compared to males ($P = 0.03$).

Table 3: Knowledge about the effect of smoking on healing of periodontal diseases, effect of proper scaling on teeth

Variable	Gender		P – value
	Male	Female	
Mobility	60 (75)	95 (79.2)	0.031 (Significant)
Negative effect of smoking on heeling of periodontal diseases			
Yes	65 (81.25)	108 (90)	0.001 (Significant)
No	15 (18.75)	12 (10)	

DISCUSSION

The main etiological agent of periodontal disease is plaque, which is a biofilm that contains dominantly microorganisms. These organisms directly through the release of toxins, enzymes and toxic metabolic product and indirectly through complement activation and hypersensitivity reaction cause periodontal disease. However, periodontal disease will only occur when the balance between the host resistance and the etiological agents has been disrupted. The principal risk factors for the periodontal disease are poor diet and nutrition, obesity, physical inactivity, tobacco use, excessive use of alcohol and psychosocial stress, insufficient personal/oral hygiene, and general health. [13,14] Hence, this study was conducted to assess the knowledge and awareness of periodontal diseases among dental students.

In the present study, the majority of students stated that they maintain regular toothbrushing habits, either once, twice, or more daily. Only a small percentage (1.5%) admitted to never cleaning their teeth. Moreover, more than half of the respondents (50%) expressed the belief that it is necessary to visit the dentist when experiencing gum bleeding. A study by

Dhulipalla R et al, majority of the study participants (82%) had a previous dental visit. Only 31.3% believed that plaque is the major cause for periodontal disease. 56.7% responded that the relation between periodontal disease and systemic diseases is bidirectional. Only 39.3% were aware that periodontal disease is a risk factor for preterm low-birth weight infants. 52.6% of the medical faculty thought that scaling causes loss of enamel. 54.7% were aware that light amplification by stimulated emission of radiation is used in the periodontal treatment. Medical professionals who visited specialist in their previous dental visit obtained mean periodontal score (5.35 ± 1.686) greater than those who had visited general dentist and the difference is statistically significant (0.024). They clearly demonstrates that medical practitioners had fair knowledge about various aspects of periodontal disease. This was particularly evident among those who have had a previous visit to a dentist. It was also found that young professionals with limited experience in the profession had better knowledge. [15]

In the present study, approximately 75% of students demonstrated awareness that chronic periodontal diseases can lead to teeth mobility and subsequent early tooth loss due to advanced bone loss caused by inflammation. Significantly, a higher percentage of female students (79.2%) showed awareness of this fact compared to males (P = 0.03). Another study by Azodo CC et al, out of 180 teachers recruited from seven public primary schools in Benin City, Edo State, Nigeria, 151 of them fully participated by filling the study questionnaires giving a 83.9% (151/180) response rate. The majority 74.2% (112/151) of the participants reported having heard of the periodontal disease and the leading source of information was television. A total of 29.8% (45/151) of participants considered periodontal disease as the main cause of tooth loss among adult Nigerian. Only 12.6% (19/151) of the participants knew dental plaque as soft debris on teeth and 29.1% (44/151) attested that plaque can cause periodontal disease. The majority of the participants were not aware of age 81.5% (123/151) and gender 96.7% (146/151) predisposition to periodontal disease. The perceived manifestations of the periodontal disease reported by were mainly gum bleeding 35.1% (53/151) and swollen gum 20.5% (31/151). A total of 70.2% (106/151) of the participants considered periodontal disease as a preventable disease and about half 49.0% (74/151) of the participants considered daily mouth cleaning as the best preventive method. The majority 95.4% (144/151) of the participants expressed interest in learning about the periodontal disease and the most preferred methods were workshops and lectures. A significant proportion of the participants heard about periodontal disease from nondental clinic sources. There existed a poor awareness of etiology, age and gender predispositions, manifestation, complications, and the preventable nature of periodontal disease among the participants. However, the majority of them indicated interest in learning about periodontal disease which should be utilized in optimizing their knowledge. [16]Alzammam N et al, a total of 906 students completed the questionnaire. Majority of students reported that they brush their teeth regularly while only 5.1% of students admitted that they never clean their teeth. Roughly one-quarter of students could define dental plaque correctly. A high "percentage" of females and medical students were more aware concerning gum inflammation signs and symptoms than males and students from faculties of engineering and science. Students of medical specialties and females were more aware of the relationship between smoking, diabetes mellitus, and heart diseases on the one hand and periodontal diseases on the other hand compared to opposite comparative groups. A low proportion of students were aware that proper scaling was not harmful to the teeth. In general, they demonstrated that university students had poor knowledge regarding the etiology of periodontal diseases as well as the role of conventional treatment in maintaining good oral health by preventing the inflammatory process. [17]Khakreetal. [18] assessed the level of awareness about the mutual relationship between DM and periodontitis among 302 high-risk diabetic patients and found that majority of the patients were unaware of this relationship. Bhatia et al. [19] in 2013 explored the patients views on their periodontal conditions and their attitudes toward oral health and treatment expectations and knowledge toward oral-systemic disease link.

CONCLUSION

Dental students moderately knew about effects of smoking on heeking of periodontal diseases and knowledge about etiology as well as conventional treatment was moderate.

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