



The Prevalence of Periodontal Diseases among House Officers at Military Dental Hospital in 2018-2019 in Omdurman, Sudan

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ABSTRACT

Published Online: 29 July, 2023

Background: periodontal diseases are increase among house officers and may affect their quality of life and clinical performance and these diseases can reflect by their oral hygiene habits and scientific knowledge about the periodontal diseases and their risk factors. The aim of this study was to assess the prevalence of periodontal diseases among house officers at military dental hospital in Omdurman, Sudan.

Materials and Methods: in this descriptive cross sectional study hospital base, data was collected using pre-tested interview questionnaires and clinical periodontal examination from dental house officers in manner of total coverage, and analyzed using SPSS Package version 23.0.

Results: A total number of 100 dental house officers , with mean age 25 were participated in this study, and most of them were civilian and females, after clinical examination we found that 69% of dental officers had chronic gingivitis, 79% of house officers brushed their teeth twice daily, the main brushing technique used was Bass technique, 90% didn't use inter dental aids, 81% complained of bleeding on brushing and 77% complained of inflamed gingival tissue. 96% of dental house officers agreed that stress affect the oral health and 33% coped stress by sleeping, 89% didn't smoke and the group of smokers, 54% of them smoked more than 6 cigarette per day, 54% said that the most effect of hormonal changes on periodontium was gingivitis .90% of dental house officers explained plaque control technique to their patients, 82% informed patients about risk factors of periodontal diseases.

Conclusion: The present study demonstrate that the higher percentage of house officers had periodontal disease which was chronic gingivitis and they were good role modeling to their patients.

KEYWORDS:

Prevalence, periodontal diseases, house officers.

INTRODUCTION

Periodontal disease is defined as an inflammatory disorder involving both soft and hard tissue; it is classified in to gingivitis and periodontitis (1). Gingivitis is reversible type of periodontal diseases in which inflammation is limited to the gingiva without further destruction of the tooth supporting components. It is caused by the increased accumulation of plaque bioilm near the gingival margins, the clinical features of gingival inflammation include erythema, Spongiotic texture of the gingiva, swelling, bleeding and calculus

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**Cite this Article: Dalia Ahmed Gasm El Seed, Mayada Osman Alhaj, Nafahat Abdalmohsin Alsiddig, Elaf Amer Ibrahim (2023). The Prevalence of Periodontal Diseases among House Officers at Military Dental Hospital in 2018-2019 in Omdurman, Sudan. International Journal of Clinical Science and Medical Research, 3(7), 150-155*

formation without loss of clinical attachment or bone (2).Clinically ,the presence of the gingivitis can be assessed by gingival index (GI) of ;Loe and Silness (3).Avoidance of dental biofilm by home plaque control or remove the plaque and calculus by scaling in dental clinic are the treatment of gingivitis and prevent it from progress to more serious diseases which is periodontitis (2)

Periodontitis is a progressive chronic inflammatory diseases characterized by destruction in connective tissue, periodontal ligament and alveolar bone. The clinical signs and symptoms include increased probing depth, attachment loss, bleeding on probing, mobility and may lead to tooth loss (4).

Periodontitis is a multifactorial diseases caused mainly by group of bacterial microorganisms and affected by many risk factors, which divided in to determinants(age, gender, gene polymorphisms) and acquired factors: environmental and

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behavioral (specific bacteria , smoking , stress, diabetes and socioeconomic status) (5).

Home oral hygiene involve using a tooth brush ,dental floss ,wood picks and other devices to remove plaque from the surfaces of the teeth are considered key factors in controlling the periodontal diseases .Effective plaque control at home play the most important role in the prevention and treatment of periodontal diseases (6).

Dentists are considered role models by the general population in regards to oral hygiene and oral health behavior .The presence of periodontal disease among dentists may affect their quality of life and clinical performance and these diseases can reflect by their oral hygiene habits and scientific knowledge regarding periodontal diseases with risk factors. The dentist should become positive role modeling for the patients so the aim of this study was to assess the prevalence of periodontal disease among dental house officers at military dental hospital in Omdurman, Sudan.

MATERIALS AND METHODS

We conducted a descriptive cross-sectional study hospital based among dental house officers in the Military dental hospital in Omdurman, Sudan. A designed pre tested interview questionnaire was used to collect data from study participants with periodontal clinical examination. We collected demographic data e.g: age , gender and military or civilian dentists, questions regarding oral hygiene habits, oral and periodontal diseases that they had, stress and it effects in their oral health and the methods they were used for coping , the smoking habits for males with the numbers of cigarettes, questions regarding the effects of females hormonal changes during menstruation and pregnancy on periodontal health, questions about the role of dental house officers in explained the recommended brushing techniques and to informed about the oral diseases risk factors for their patients. The second part in this study method was the clinical periodontal examination for the dental house officers after get the ethical committee agreement and all the participants signed informed consent before participating. The periodontal clinical examination which included the plaque index(PI) ,Gingival index (GI), Periodontal pocket depth (PPD) and Clinical

Attachment Loss(CAL) were assessed by using partial mouth examination (the Ramfjord teeth which includes the maxillary left and mandibular right central incisors, maxillary left and mandibular right first premolars, and maxillary right and mandibular left first molars). Teeth exhibiting extensively destroyed crowns or which were not fully erupted was also excluded from the examination procedure.

A total coverage technique was used to select study participants which included all the house officers who presented in the time of study duration. Data were analyzed by SPSS version 23 and result presented in proportions and the mean for clinical periodontal parameters.

RESULTS

A total number of 100 dental house officers were included in this study. More than half were females (57%) and majority of them were civilian (95%) with an age range extended from 22 to 30years old and the mean of age was 25 years old. In this study regarding oral hygiene habits most of the house officer79% brushed their teeth twice per day with Bass technique by (34.7%) without used any of interdental aids (90%) as showed in table 2. Majority of participants 81% complained from bleeding on brushing as demonstrated in table 3.In our study 96% of dental house officers agreed that stress affects the oral health and 33% preferred to deal with stress by sleeping as way of coping with it as found in table 4. Our finding showed that 89% of the participants did not smoke and who smoked, more than half of them 54.4% actually smoked more than 6 cigarettes per day as showed in table 5. Regarding the knowledge about the effect of the female hormonal changes during pregnancy and menstruation on the oral and periodontal health 54% said the gingivitis was the most common diseases occurred during female's hormonal changed period (table 6). In our study 90% of the dental house officers explained the methods of plaque control to their patients and 82% informed patients about risk factors of periodontal and oral diseases as found in table 7. The finding of our study showed that the mean of periodontal parameters were PI(1.32) ,GI(1.24),PPD(0.2) , CAL(0.05) and MOB(0) . The majority of house officers had chronic gingivitis (69%) as seen in table 8.

Table1: The age of the dental house officers

Mean ± (SD years)	Median	Range(years)
25.35± 1.34	25	22-30

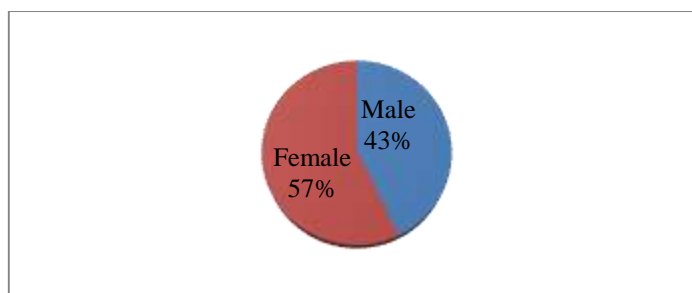


Figure 1: The gender of the dental house officers

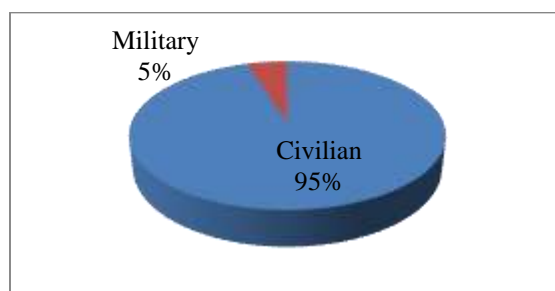


Figure 2: The type of house officers (Civilian or Military).

Table 2: The oral hygiene habits among dental house officers:

Frequency of tooth brushing per day	Once %	Twice %	Three or more %	
	17%	79%	4%	
Brushing technique	Bass %	Vertical %	Roll%	Horizontal%
	34.7%	16.3%	33.7%	15.3%
Interdental aid	Yes		No	
	10%		90%	

Table 3: The oral and periodontal diseases symptoms and signs among participants:

Oral and periodontal diseases signs and symptoms	Yes%	No%
Bleeding on Brushing	81%	19%
Inflamed gingival Tissue	77%	23%
Tooth Mobility	13%	87%
Apthus Ulcer	29%	71%

Table 4: Stress and its effect on oral health and the ways of stress copying:

Stress can affects the oral health	Agree %				Disagree%			
		96%				4%		
The ways of stress coping	Ignore	Reading	Eating	playing	Swimming	Sleeping	Smoking	Music
	23.4%	10.6%	12.8	10.6%	3.2%	33%	2.1%	4.3%

Table 5: Smoking habits among dental house officers:

Smoking	Yes %		No%	
		11%		89%
Number of cigarettes per day	Between 1-3	Between 4-6	More than 6	
	9.1%	36.3%	54.4%	

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Table 6: The knowledge regarding the periodontal and oral diseases that associated with female hormonal change during menstruation and pregnancy:

Periodontal and oral diseases with female hormonal changes (menstruation and pregnancy)	
Gingival Bleeding	6%
Gingivitis	54%
Periodontitis	11%
Burning sensation	6%
Gingival Enlargement	14%
Ulcer	9%

Table 7: The role of house officer in explain the methods of plaque control and informed patients about risk factors of periodontal diseases:

The role of dental house officers	Yes%	No%
Explained the methods of plaque control	90%	10%
Informed patients about risk factors	82%	18%

Table 8: The periodontal parameters and diagnosis:

Periodontal Parameters	Mean ± SD
PI	1.32 ± 1.34
GI	1.24 ± 0.25
PPD	0.2 ± 0.23
CAL	0.05 ± 0.47
MOB	0± 0
The Diagnosis of periodontal diseases	The percent %
Chronic Gingivitis	69%
Chronic Periodontitis	31%

DISCUSSION

Oral health is important to general health and overall well being, which is related to individual oral health knowledge and healthy oral hygiene habits (7). Periodontal diseases are a public health problem and the most common oral diseases affecting the tissue that surrounds and supports the teeth including the gingiva, periodontal ligament and alveolar bone. These abnormalities may be restricted to the gingiva (gingivitis) or may extend to the periodontal ligament space and alveolar bone (periodontitis). Periodontitis may lead to tooth mobility, pathologic migration and eventual loss of teeth (8).

In the present descriptive cross-sectional study with sample size of 100 house officers, the range of age was between (22-30 years) with mean age 25.35± 1.34 years. The Male: Female ratio was 1: 1.5. The results of this study showed that the majority of house officers had periodontal diseases, most of them had chronic gingivitis(69%) with mean Plaque index (PI) was 1.24 and mean Gingival index(GI) was 1.32 , the results were disagreement with the study that had been done by Wagle M, et al at Kathmandu in 2014 for 472 participants (195 dentists and 277 laypersons from the general population) to determine the oral health status of dentists and laypersons by CPITN (Community periodontal index of treatment need) the results showed 82% of dentists had CPITN score of 0(

healthy) whereas 71% of laypersons had the highest score 3(shallow pockets 4-5 mm) (p = 0.007) (9).

In our study most of the house officers complained of bleeding with brushing, which is considered as sign of periodontal diseases.

Plaque control is the regular removal of microbial plaque and the prevention of its accumulation on the teeth and adjacent gingival surfaces. Plaque control may be mechanical plaque control(e.g : scaling in dental clinic, tooth brushing at home and inter dental aid like flossing) or chemical plaque control(e.g mouth wash)(10) .Plaque control and the oral hygiene practice is important for maintain the health of the periodontal tissue by prevention of gingivitis and periodontitis(10) . Our finding showed that majority of the dental house officers brush their teeth twice per day by Bass technique but without using any inter dental aid. These results were not in agreement with the study that had been done by Umeizudike, et al, In Lagos, Nigeria at 2015 with 108 questionnaires to assesses the oral self-care practices and preventive among (house officers and residence) within a teaching hospital in Nigeria, the results showed less than half of the respondents (45.5%) brushed their teeth at least twice daily. the roll technique was used by slightly more than half (54.5%) of the respondents. Fifty two respondents (59.1%) used interdental floss and (14.8%) of them used interdental floss at least once daily

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(11). The use of interdental cleaning aid is an important part of dental hygiene and it is required daily to remove the plaque from the interdental areas and beneath the gingival margin(11). The difference between the studies in utilized the interdental aids mainly the dental floss could be attributed to greater level of awareness and self motivation of the dentists.

The result regarding brushing technique was in accordance with another study in north India that conducted by Singh and Tuli, in which the Bass technique was the mostly used method (12).

The dentists select and recommended the most suited and effective technique in removing dental plaque without causing damage to the soft and hard tissue, so the scrub horizontal technique was the least utilized method among the dental house officers (11). The role of the dentists in the oral health promotion and dissemination of the preventive information is critical and should give the right information about good oral hygiene practice to their patients, family and society so their own oral hygiene practice should follow the recommended ones(11).

Dentists are prone to professional burn out, anxiety, pressures and depression which may affects their systemic and oral health. Chronic Stress is one of the main risk factors for initiation and increase progression of the periodontal diseases like gingivitis and chronic periodontitis in the presence of dental plaque, because stress leads to increase cortisol hormone which lead to suppress the immunity, increase the inflammatory mediators that alter host response toward periodontal pathogens and the stress lead to changes in the individual's behavior :poor oral hygiene and smoking (13)

In this study the majority of the participants agreed that stress could affects oral health and to reduced it most of the dental house officers coped stress by sleeping followed by ignoring stress and eating. Which are considered as avoidance-oriented strategies to reducing emotional tension associated with the stressor, these methods are in active and in effective methods regarding stress coping (13). This results were in disagreement with study of Cristian Miron and Alexandru Colosi, which found that the most frequently used coping strategy to deal with work stress was resting and taking breaks followed by socializing (interacting with people) and having hobbies. Just one quarter of respondents used active coping strategies to deal with work stress and only few with eating, smoked or drank alcohol (13).

In this study 89% didn't smoked and who smoked 54% of them smoked more than 6 cigarettes per day. Our finding were in accordance with Rodrigues et al study which involved 446 dentists in the Federal District of Brasilia , Brazil by WHO questionnaire .The results showed that of the dentists evaluated 37% reported being smokers and the mean number of cigarettes per day was 11.5 (range 1 to 40)(14). Dentists like any healthcare workers, should set an example to smoking patients and alert them to health risks posted by

smoking, including the risk factor for the periodontal diseases and oral cancers (14). Changes in women's hormonal levels (estrogen and progesterone) in different periods of their lives, such as puberty, menses, pregnancy, affect the oral and periodontal health .Female hormones have special receptors in gingival tissues. Thus women are at increased risk for oral and periodontal diseases during their life time like : gingival bleeding , gingivitis ,gingival enlargement , periodontitis , aphthosis, gingival pregnancy tumor .(15)

In the present study more than half of house officers 54% said that gingivitis is the most common periodontal and oral diseases that occur during pregnancy and menstrual cycle period. Which is a fact because female sex hormones lead to magnified the tissue response to ward dental plaque and cause gingival inflammation (gingivitis), and if the oral hygiene is not optimal this gingivitis may progress to periodontitis which associated with pocket , bone loss and increase tooth mobility(15). The awareness of the dentists about the effects of hormonal fluctuation on women's periodontal health is very important.

Most behaviors, attitude and values could be learned through modeling. Epstein et al. have shown that active observation and reflection, through a mixture of conscious and unconscious activities, is the means via which learning from role models takes place (16).

House officers were positive role modeling, 90% were explained plaque control techniques to the patients and 82% informed patients about risk factors of periodontal disease. This is in agreement with study of Osama Mohamed which explore the views of early career dentists on positive and negative role models across key phases of professional development, together with role models' attributes and perceived influence in one academic health science centre in England, the results showed that twelve early career stage dentists, 10 of whom were female, reported having role models, mainly positive, in their undergraduate and early career phases. Participants defined role models' attributes in relation to three distinct domains: clinical attributes, personal qualities and teaching skills. Positive role models were described as "prioritizing the patient's best interests", "delivering learner-centered teaching and training" and "exhibiting a positive personality", whilst negative role models demonstrated the converse .Dentists who prioritize ' patients' best interests, support learners' academic, clinical and professional development and exhibit positive personal characteristics towards others, were considered positive role model (17).

CONCLUSION

Periodontal diseases affect dental house officers and more than half of them were had chronic gingivitis. Most of dental house officers practice good oral hygiene, brushing their teeth twice daily, used Bass technique but 90% did not use

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interdental aids. The majority of house officer were aware about the risk factors of periodontal diseases like (stress, smoking and female hormonal changes) and their effect on periodontal tissue. In our study dental house officers were good role modeling to their patient.

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