The Scientific Journal of University of Benghazi

http://journals.uob.edu.ly/sjuob

Knowledge and Practice of Periodontal health among the students of Higher Institute of Medical Professions in Benghazi-Libya

Salma O. Mahfoud[1], Logien B. Al Ghazal[2], Hajer Alkhafifi[3], Najiya Ben Amer[4], Rehab Jamal[5]

[1,2] *Department of periodontology, Dental school, University of Benghazi.*
[3,4,5] *Higher Institute of Medical Professions*

Received: 24 / 10 / 2021; Accepted: 09 / 12 / 2021

الملخص:

أمراض اللثة مرض مزمن قد يسبب فقدان الأسنان. على مدى العقود الأربعة الماضية، وثيق ارتباط أمراض اللثة بالعديد من المشكلات الصحية العامة مثل أمراض القلب والأوعية الدموية والسكري. تعتمد الوقاية من أمراض اللثة على التعليم المستمر من المتخصصين في الرعاية الصحية.

أجريت دراسة استقصائية مقطعية على 500 طالب من المعهد العالي للمهن الطبية في بنغازي -ليبيا (HIMPS) لتقويم معرفتهم فيما يتعلق بأمراض اللثة وكيف يمارس المشاركون نظافة الفم اليومية. استخدم استبيان في صورة مقابلة شخصية مع الطالب في هذه الدراسة. أبلغ جميع المشاركين شفهيًا بطبيعة الدراسة والغرض منها. أظهرت هذه الدراسة أن 30٪ فقط من طلاب (HIMPS) يعرفون عن ترسبات الأسنان. وحوالي 31٪ من الطلاب لديهم معرفة بالعلاقة بين أمراض اللثة والأمراض العضوية الأخرى كأمراض القلب وداء السكري. استخدم ستون بالمائة من الطلاب فرشاة الأسنان مرتين يوميًا لكن 33 بالمائة فقط منهم استخدموا أدوات تنظيف ما بين الأسنان. وجد أن الطلبة المتخصصين في قسم صحة الفم في جميع المراحل الدراسية هم أكثر معرفة بأسباب امراض اللثة وكيفية الوقاية منها. استنتجنا أنه مطلوب المزيد من التثقيف والتوعية في مجال طب الأسنان لأخصائي المهن الطبية الأخرى حيث أن صحة الفم مراءه للصحة العامة.

الكلمات المفتاحية: العناية بالفم، امراض اللثة، المعلومات، التعليم.

Abstract

Periodontal diseases are a group of chronic inflammatory diseases that may cause tooth loss. For the past four decades, it has been documented that periodontal disease has an association with several systemic health issues such as cardiovascular diseases and diabetes. Prevention of periodontal disease requires continuous education from health care professionals.

A cross-sectional survey study was conducted on 500 students from the Higher Institute of Medical Professions in Benghazi-Libya (HIMPS) to assess their knowledge regarding periodontal disease and how the participants practice daily oral hygiene. A structured interview questionnaire was used in this survey. All participants were informed orally about the nature and purpose of the study. This study showed that only 30% of the students at the HIMPS knew about dental plaque. Also, about 31% of the students knew of the association between periodontal disease and systemic diseases. Sixty per cent of the students used toothbrushes twice daily but only 33% of them used interdental cleaning aids. More dental education and awareness is required for health care professionals in Libya.

Keywords: oral hygiene, periodontal disease, knowledge, education.

1. INTRODUCTION

Periodontal disease is one of the most common chronic disorders of infectious origin known in humans with a prevalence of 20-50% in adults [1,2]. Depending on the extent of inflammation, the destructive process may involve the soft tissue surrounding the teeth without loss of attachment (gingivitis), and /or the deep supporting tissue of the teeth; the periodontal ligament, cementum and bone (periodontitis). [3]

*Correspondence:
Logien B. Al Ghazal
E.mail: Logien.AlGhazaL@uob.edu.ly

In the absence of adequate oral hygiene, periodontal microorganisms accumulate and form an organized structure known as a "bacterial biofilm". [3,4] The immunoinflammatory response to this subgingival biofilm causes the rise in certain cytokines such as IL-1B and IL-6. The exaggerated immune response may spread throughout the body affecting multiple organs leading to further systemic involvement. [4,5]

Therefore, periodontal disease does not only affect the oral cavity but it also has a major impact on systemic health. Periodontal disease has been shown to be associated with a variety of medical outcomes such as unfavourable pregnancy outcomes, cardiovascular diseases (CVD) and diabetes [6-10]. The risk of periodontal disease increases with several factors such as oral hygiene neglect, smoking, systemic diseases, and medications [7].

©2021 Unuiversity of Benghazi. All rights reserved. ISSN:Online 2790-1637, Print 2790-1629; National Library of Libya, Legal number : 154/2018

Prevention from periodontal disease starts with proper oral hygiene which is well known as plaque control. Plaque control is important for dental and general health, it is also necessary for the long-term success of periodontal treatment [11,12,13]. Dental health education programs are important for health promotion among health care providers and the community. Improving dental health helps in reducing the risk of aggravating other systemic diseases [14,15].

The aims of the study were to evaluate the level of oral health knowledge regarding periodontal disease and how it is related to systemic disease. Moreover, to test the level of oral hygiene practice among students of the Higher Institute of Medical Professions – Benghazi – Libya.

2. MATERIALS AND METHODS

A cross-sectional survey study was conducted on 500 students from the Higher Institute of Medical Professions in Benghazi-Libya (HIMPS) to assess their knowledge regarding periodontal disease and how the participants practice daily oral hygiene. Permission to question the students was gained from the Dean of the HIMPS. All participants were informed orally about the nature and purpose of the study. Verbal and written consent was gained before the interview. A structured interview questionnaire was used in this survey. After obtaining the consent, the students were questioned separately.

Questionnaire design

The questionnaire **(Table1)** includes three sections. Section (A) focuses on the socio-demographic and personal data. Section (B) includes questions testing the basic knowledge regarding periodontal disease and its association with systemic health. Section(C) addresses how the participants practice daily oral hygiene and asks them to demonstrate their technique in brushing their teeth on an oral hygiene model. All responses to questions were analyzed using statistical analysis using the SPSS IBM package version 20**.**

3. RESULTS

Socio-demographic data

Five hundred students from the Higher Institute of Medical Professions Benghazi – Libya were included in this study as shown in [**Table** 2]. The students' mean age was 20.8 years**.**

(Table1):Questionnaire form

(Section A: socio-demographic and personal data)	
Age:	
Sex:	
Collage dept.speciality:	
Year of study:	
Residence:	
Living condition:	(Flat – house – villa).
Households:	(Parents –spouse– spouse/parents with children)
Income:	working (completely independent) (partially independent).
(Section B: periodontal knowledge &OHI practice)	
Do you know what dental plaque means?	1. Yes 2. No
Are you aware of the symptoms of periodontal disease?	1. Yes 2. No
If yes, could you mention two symptoms of them?	
Do you think there is an association between pregnancy and periodontal disease?	1. Yes 2. No
Are you aware that chronic periodontitis is a risk factor for other systemic diseases (CVD, diabetes)	1. 1. Yes 2. No
Do you think that periodontal disease is preventable?	1. Yes 2. No
From where do you get your information about oral hygiene?	(Family, friends, media, dental clinic).
(Section C: Oral hygiene practice)	
How often do you brush your teeth?	(Never, once, twice, more than twice)
Do you have a specific way of brushing your teeth?	Yes No
Do you use an interdental cleaning aid? Dental floss or an interdental brush	Yes No
Do you use any other oral hygiene methods?	Yes No

©2021 Unuiversity of Benghazi. All rights reserved. ISSN:Online 2790-1637, Print 2790-1629; National Library of Libya, Legal number : 154/2018

Table 2 Distribution of students according to gender

Sex	No.	%
Female	455	91
Male	45	9
Male	45	9
Total	500	100

The students at the Higher Institute of Medical Professions studied general basic subjects in the first year before they specialized in specific departments. The students were distributed as follows; 213 students in the first year, 65 students in the Medical Facility Department, 74 students in Radiology, 65 students in the Dental Hygiene Department, and 83 students in the Anesthesia Department. Most of the students were partially independent with regard to income.

Knowledge about periodontal disease and its association with systemic diseases.

The response of the students to the question, Do you know what is dental plaque (DP)? Three hundred and fifty-six students out of 500 students did not know what is DP. Only 21.8 % and 9% of female and male students respectively knew about DP [**Figure 1**].

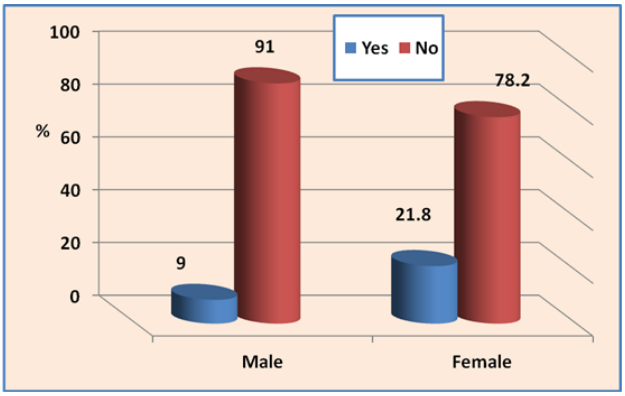


Figure 1 presents the response to the question Do you know what dental plaque is?

Most of the students who knew about dental plaque were those enrolled in the oral hygiene department (73.8%). There was a significant difference between the students from different specializations at p-value = 0.0001.

The other question to test the participants' knowledge about periodontal disease was about whether the participant knew about periodontal disease symptoms. The highest score (57 %) was for the dental hygienists who knew two symptoms. There was a significant difference between the students from different specializations at p-value = 0.0001. There was also a significant difference between females and males[Figure 2].

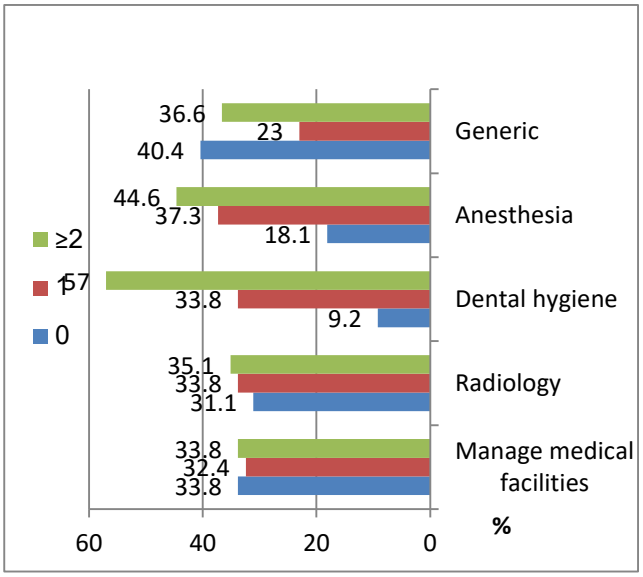


Figure 2 shows the distribution of students who knew two symptoms of periodontal disease

shows the results of the response to the question Is there an association between chronic periodontitis and other systemic diseases such as cardiovascular disease and diabetes? Most of the students knew of this association.

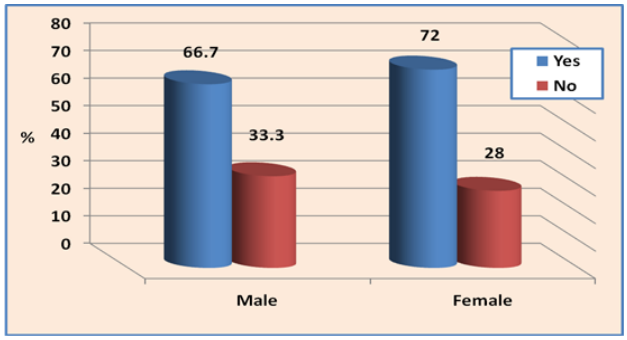


Figure 3: response to the question regarding the association between periodontal disease and systemic disease.

Oral hygiene practice:

When students were asked about oral hygiene practice, most of them brush their teeth twice daily with a percentage of (61.8 % and 60%) for female and male students respectively. The results [

] in general show a significant difference between female and male students at P-value =0.009.

©2021 Unuiversity of Benghazi. All rights reserved. ISSN:Online 2790-1637, Print 2790-1629; National Library of Libya, Legal number : 154/2018

Table 3: shows students who brush their teeth

How often do you brush your teeth?	Male		Female	
	No.	%	No.	%
Never	0	0	3	0.7
Once	17	37.8	93	20.4
Twice	27	60	281*	61.8
More than two	1	2.2	78	17.1
Total	45	100	455	100

*P =0.009 (Significant).

Even though most of the students knew that maintaining oral hygiene is by using a manual toothbrush and interdental aids (IDA), about 89% of males and 78.5% of females did not use any interdental cleaning aids.

It is important to know whether they brush their teeth with the right technique or not, as the quality of brushing is more important than the quantity of brushing. The results of the present study showed that only 7.8% of the students used the Bass technique to brush their teeth.

4. DISCUSSION

Periodontal disease (PD) has been recognized as a major global public health problem due to its prevalence, the economic impact on the health care system and health consequences. [14, 15]

Five hundred students from the Higher Institute of Medical Professions Benghazi – Libya were included in this study. Students are a good representative sample for the population since they reflect education, and socio-economic conditions, which can affect their oral health behaviour and status. Health care providers should have adequate knowledge about oral health and they should play an active role in oral health promotion. To our knowledge, this is the first study to be conducted on Libyan students.

In this study, we assessed the knowledge of periodontal disease among HIMP students; whether they knew about periodontal disease and its association with other systemic diseases. The European Federation of Periodontology (EFP), is calling upon dental and health professionals to act on the prevention, early diagnosis, and effective management of PD. [15]

The Higher Institute of Medical Professions students studied general basic subjects in the first year before they were distributed to different fields such as medical facilities' management, radiology technology, dental hygiene, anesthesia assistance.

The response of students to the first question Do you know what dental plaque (DP) means? (dental plaque is the main cause of periodontitis); 356 out of 500 students did not know what DP is; only 30% of the students knew what dental plaque was. The results for the same question among different specializations showed a significant difference between them at P-value = 0.0001. The highest percentage of knowledge regarding that question was 73. 8% for the dental hygienist specialization students. This could be attributed to the fact that this information is part of their curriculum. Also, there was a significant difference between female and male students, as female students were more aware of DP. This study's results are in agreement with the results of two studies conducted at college universities in Jordan and Yemen [15,16]. These two studies evaluated the knowledge and awareness among university students [15,16]. Both studies demonstrated that students in the medical or dental fields were more aware when compared to other specialities [15,16]. With respect to gender, female students were more aware than males [16,17].

Regarding symptoms of periodontal disease, the highest percentage of students who knew more than one symptom of PD was from the dental hygiene speciality (57%). This can probably be attributed to the increasing awareness and level of education among oral hygienists as these topics are part of their syllabus which had a significant impact on their knowledge score. [16, 17, 18, 19]

This study shows the results of testing the participants' periodontal health knowledge regarding whether chronic periodontitis is considered a risk factor for other systemic diseases such as CVD and diabetes. Most of the students knew about this association with no significant difference between the various specializations.

Oral hygiene is important for maintaining a healthy periodontium and is dependent on a manual toothbrush and interdental aids. Most of the students brush their teeth twice daily, at 61.8 % for female students and 60% for male students and even though most of the students were brushing their teeth manually ranging from 1 to 3 times daily, 92.2 % of them were not practising the right brushing technique (the Bass technique) as demonstrated by the oral hygiene student using the oral hygiene model. Regarding the use of interdental cleaning aids; dental floss or interdental brushes or any other oral hygiene methods, results show 89% of male students and 78.5% of female students have never used interdental aids. Generally, public awareness about interdental aids and other measures to control dental plaque is weak, presumably due to inadequate health education concerning these conditions. However, most of the study participants had a good level of knowledge regarding the role of oral hygiene in preventing gingival disease. This is in agreement with similar studies. [20, 21,22]

The results of practising the right brushing technique as demonstrated by students using the oral hygiene model show that 92.2% practice in the wrong way and 7.8%, who were oral hygienist students, use the right technique. Other studies proved that dental health knowledge and attitudes

©2021 Unuiversity of Benghazi. All rights reserved. ISSN:Online 2790-1637, Print 2790-1629; National Library of Libya, Legal number : 154/2018

became more positive with the increase of the level of education. [18,19]

This study demonstrated that there were significant differences in oral health knowledge among students from different levels of studies and different disciplines. The findings might reflect the difference in students' experience, attitudes, behaviour, and education. It was found that the awareness observed in the current study is high especially among oral hygienists and the difference was statistically significant among the different specialized groups in some aspects. Similar results were observed in studies conducted by Umeizudike et al [24] & Pralhad and Thomas [25]

In the present study, awareness regarding oral health was found to be poor among specializations other than oral hygiene due to a lack of educational programs about PD. The results of the present study are in agreement with other studies. [26, 27] Knowledge about periodontal disease and its impact on systemic illnesses should be emphasized to health providers and in continuing medical education courses which will be reflected positively on the general population.[27]

Health care professionals and providers interact with several patients each day. Health education plays an important role in the prevention of periodontal disease. Assessing and improving the existing knowledge about periodontal disease and its systemic manifestations among health care professionals will be beneficial to society [28,29] A periodontal awareness program, which aims at improving periodontal health, should be initiated for all HIMP students. Awareness of the necessary actions of patients and dental professionals is seen as the key to improving periodontal health. [30, 31]

5. CONCLUSION

The various and inadequate knowledge regarding periodontal disease and the attitude towards oral hygiene practice observed in this study highlighted the weaknesses in the oral health education programs in Libya.

6. RECOMMENDATION

It is recommended that dental education programs are conducted for health care providers to try to update their knowledge about the periodontal and systemic disease correlation and other aspects relating to oral health care. So, basic knowledge of dentistry should be incorporated into the syllabus used for healthcare providers, which will be of great benefit.

7. REFERENCES

1. Papapanau PN. Periodontal disease epidemiology. Ann periodontal 1996;1:1-36.
2. Sanz M, D'Aiuto F, Deanfield J, Fernandez-Avilés F. European workshop in periodontal health and cardiovascular disease-scientific evidence on the association between periodontal and cardiovascular diseases: A review of the literature. *Eur Heart J Suppl.* 2010;12(Suppl B): B3–12.
3. Listgauten M A, Nature of periodontal disease; Pathogenic mechanisms . J Periodonl Res . 1987;22:172-178.
4. Darveau RP, Tanner A, Page RC. The microbial challenge in periodontitis. Periodontol 1997:14:12-32.
5. Steinberg, B.J; Minsk, L; Gluch, K. et al., 2008 Sherif,K.(Eds.), Women's Health Issues in Clinical practice. Humana Press, Totowa, NJ, PP.273-293.
6. Dumitrescu AL, Teslaru S, Mocanu V. (2009) The influence of restorations on periodontal health Rev Med ChirSoc Med NatIasi. 113(2):575.
7. Vargas A, Ilyina A, Segura E.P, Silva AM, Méndez L.(2015) "Etiology and microbiology of periodontal diseases: A review", African Journal of Microbiology Research, Vol.9(48). PP.2300-2306.
8. Silva AM, Newman HN, Oakley DA (1995). Psychosocial factors in inflammatory periodontal diseases. A review. J. Clin. Periodontol. 22:516-526.
9. Sfyroeras GS, Roussas N, Saleptsis VG, Argyriou C, Giannoukas AD. Association between periodontal disease and stroke. J Vasc Surg. 2012;55(4):1178-84.
10. Leng WD, Zeng XT, Kwong JS, Hua XP. Periodontal disease and risk of coronary heart disease: An updated meta-analysis of prospective cohort studies. Int J Cardiol. 2015; 201:469-72.
11. Denis, F.(2017)."Periodontal diseases". Retrieved 23-7-2019 from http://www.researchate.net/publication/318158042.
12. Axelson P, Nyström B, Lindhe J. The long-term effect of a plaque control program on tooth mortality, caries and periodontal disease in adults. Results after 30 years of maintenance. J Clin Periodontal 2004; 31:749-757.
13. Menon. L, and Ramamurthy. J. (2014) "New vistas in plaque control", IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), Vol.13(3). PP.64-68.
14. Dayakar MM, Kumar J, Pai GP, Shivananda H, Rekha R. A survey about awareness of periodontal health among the students of professional colleges in Dakshina Kannada district. J Indian Soc Periodontol. 2016; 20:67–71.
15. Mohd Dom TN, Mohd Dom S, Abdul Aziz AF, et al. Periodontal disease as an indicator of chronic non-communicable diseases: evidence from literature. BMC Public Health 2012; (Suppl 2): A26.

©2021 Unuiversity of Benghazi. All rights reserved. ISSN:Online 2790-1637, Print 2790-1629; National Library of Libya, Legal number : 154/2018

16. Nada Alzammam and Alaa Almalki. Knowledge and awareness of periodontal diseases among Jordanian University students: A cross-sectional study. J Indian Soc Periodontol. 2019 Nov-Dec; 23(6): 574–579.

17. Khaled A AL-Jawfi and Arwa M Alhaj. Knowledge, Attitudes and Practices Related to Oral Health of Dental, Medical and Pharmacy Students at the University of Science and Technology in Yemen. International Journal of Dentistry and Oral Health, 2018 Aug; Vol 4, issue 4.

18. European Federation of Periodontology and the American Academy of Periodontology. EFP Manifesto: Perio and general health. Segovia: European Federation of Periodontology, 2013. Available from: http//www.perio workshop.efp.org.

19. Mariotti A; Critical Reviews in Oral Biology and Medicine: an Official Publication of the American Association of Oral Biologists, 01 Jan 1994, 5(1):27-53.

20. Mårtensson C et al. Factors behind change in knowledge after a mass media campaign targeting periodontitis. International Journal of Dental Hygiene, 2006, 4:8–14.

21. El-Qaderi SS, QuteishTa'ani D. Assessment of periodontal knowledge and periodontal status of an adult population in Jordan. International Journal of Dental Hygiene, 2004, 2:132–136.

22. Gholami M, Pakdaman A, Virtanen JI. Common perceptions of periodontal health and illness among adults: a qualitative study. ISRN Dentistry, 2012, 2012. DOI: 10.5402/2012/671879.

23. Deinzer R et al. More to learn about: periodontitis-related knowledge and its relationship with periodontal health behaviour. Journal of Clinical Periodontology, 2009, 36:756–764.

24. Van der Weijden FA, Slot DE. Efficacy of homecare regimens for mechanical plaque removal in managing gingivitis a meta-review. J ClinPeriodontol 2015؛ 42:S77 S91.

25. Kehinde Umeizudike, Adebayo T Onajole, Patricia Omowunmi Ayanbadej: Periodontal health knowledge of nonmedical professionals and their oral hygiene behavior in a teaching hospital in Nigeria 2015 European Journal of General Dentistry 4:48-54.

26. Pralhad S, Thomas B. Periodontal awareness in different healthcare professionals: A questionnaire survey. J Educ Ethics Dent. 2011;1:64–7. [Google Scholar].

27. Usman S, Bhat SS, Sargod SS. Oral health knowledge and behavior of clinical medical, dental and paramedical students in Mangalore. J Oral Health Commun Dent 2007;1:46.

28. Doshi D, Baldava P, Anup N, Sequeira PS. A comparative evaluation of self-reported oral hygiene practices among medical and engineering university students with access to health-promotive dental care. J Contemp Dent Pract 2007;8:68-75.

29. Kehinde A. Umeizudike, Sandra O. Iwuala, Obianuju B. Ozoh, Patricia O. Ayanbadejo, and Olufemi A. Fasanmade Association between periodontal diseases and systemic illnesses: A survey among internal medicine residents in Nigeria Saudi Dent J; v.28(1); 2016

30. Sujatha BK, Yavagal PC, Gomez MS. Assessment of oral health awareness among undergraduate Medical Students in Davangere city: A cross-sectional survey. J Indian Assoc Public Health Dent 2014;12:43-6.

31. Croxson LJ. Periodontal awareness: The key to periodontal health. Int Dent J 1993;43:167‑77.

©2021 Unuiversity of Benghazi. All rights reserved. ISSN:Online 2790-1637, Print 2790-1629; National Library of Libya, Legal number : 154/2018