

ORIGINAL ARTICLE

Periodontal health knowledge and oral hygiene behavior among non-teaching staff from Taibah University, Madinah, K.S.A.

¹Ahmed Salah Al-ahmadi, BDS; ¹Mazen Saleem Al mohammadi, BDS; ¹Wed Khalid Al maysari, BDS; ¹Alhanouf Mohna Al-rehili, BDS; ²Badr Othman, BDS, MS, DABOI/ID, FRCDC, FAAID; **Mohammad Sami Ahmad**, BDS, MSc, PhD

ABSTRACT

Objective: This study was aimed to assess the periodontal diseases awareness and knowledge among non-teaching staff at Taibah University. **Material and Methods:** This is a questionnaire based cross sectional descriptive study conducted on 450 non-teaching staff (250 male and 200 female) at Taibah University. The questionnaire composed of three parts, socio-demographic, periodontal health knowledge and oral hygiene practice. **Results:** The periodontal health knowledge were high among females (87%) compared to males (75%) $P=0.01$. The staffs that were visiting a dentist regularly every 6 months had more good knowledge (91%) $P<0.001$. There was a significant relation between periodontal health knowledge and tools of cleaning and times of cleaning teeth $P<0.001$ as well as the participants who got preventive advice had significant relation with the periodontal health knowledge $P<0.001$. **Conclusion and recommendation:** The female participants were having high level of periodontal health knowledge and awareness. The staff who were regularly visiting a dentist and cleaning their teeth two time a days with cleaning tools had more periodontal health knowledge. Oral health educational programs and aids, like leaflet written oral hygiene instructions, educational posters and lectures, are needed in the campus of Taibah University.

Key words: Educational poster, Gingivitis, Plaque, Supporting tissue, Taibah University.

INTRODUCTION

Periodontal diseases including gingivitis and periodontitis are prevalent in all populations worldwide. Severe periodontitis is estimated to affect 5% to 20% of adults in both developed and developing countries.¹

¹Intern, College of Dentistry, Taibah University, Al Madinah Al Munawwarah, KSA

²Assistant Professor, Periodontics Division, Department of Preventive Dental Sciences, College of Dentistry, Taibah University, Al Madinah Al Munawwarah, KSA

³Associate Professor of Dental Public Health, Department of Preventive Dental Sciences, College of Dentistry, Taibah University, Al Madinah Al Munawwarah, KSA

Correspondence should be addressed to:

Dr. Mohammad Sami Ahmad, BDS, MSc, PhD
Associate Professor of Dental Public Health
Department of Preventive Dental Sciences
College of Dentistry, Taibah University
Al Madinah Al Munawwarah, KSA
Mob: 00966531640794
Email: msamiahmad@hotmail.com

In its early stages, periodontitis begin with gingival inflammation and in its later stages may progress to tooth mobility, pathological migration and tooth loss causing chewing and speech dysfunction, aesthetic and psychological problems and impaired quality of life.²

Periodontal diseases have several etiological factors. Bacterial plaques induce inflammation that changed into chronic resulting destruction of the supporting tissues of the teeth. Thus dental plaques are one of the etiological factors essential for the initiation of the inflammatory process locally at infection site. If teeth are not brushed and flossed regularly, dental plaque becomes a medium for anaerobic bacteria that can lead to gingivitis and progress into periodontitis.^{1,3} Periodontal diseases particularly periodontitis are the major cause of tooth loss amongst adults worldwide and it has adverse effect on a person's quality of life.⁴ Since prevention and control of oral diseases are influenced by personal behavior, several theories and models are useful in interpreting behavior changes. The knowledge, attitudes and practice model is one of the models explaining how knowledge acquisition leads to improved attitudes and facilitates behavior changes.¹

A good knowledge of oral health care is believed to be an important precursor to oral health related behavior.⁵ Poor awareness may have direct effect on the illness seeking behavior of the population including their access to oral health facilities.⁶ Oral health knowledge and awareness in different population of Saudi Arabia is still low⁷ in spite of oral health awareness is conducted in a school and to general population by the health department and the dental students from Taibah University College of Dentistry. The facilities exist in most government health institution as well as university dental hospital for the staff of the university. Non-teaching staff represents an important segment of the workforce in the university because of their management functions in ensuring consistent and efficient administrative work to run the university with high standard. Any one working in the higher institution must be knowledgeable about their health issues. This would help to support the dental health team and help to promote periodontal health among their family members as well as the community at large.

The objective of the study is to determine the level of knowledge of periodontal diseases and the oral hygiene practices of non-teaching staff of the Taibah University, Madinah, Kingdom of Saudi Arabia.

METHODS:

The present study is a cross sectional survey among non-teaching male and female staff at Taibah University, Madinah, KSA. A total of 450 non-teaching staff (250 males and 200 females) that was working at Taibah University, selected by convenient sampling method. All age groups who were working at the university were considered in the study. The university staffs that involved in teaching were excluded from the study. The incomplete questionnaires or someone who did not eager to answer were also excluded from the study.

It was a self-administered questionnaire based study; this questionnaire had three segments, socio-demographic data, knowledge related to periodontal diseases and oral hygiene practice. The pretested questionnaire was distributed to the university staff and the investigators were present there during filling the questionnaire to solve the confusion if they had. The questionnaire was printed in both English and Arabic languages to understand better for both Arabic and Non-Arabic subjects. All who did correctly answer the questions related to periodontal diseases knowledge were scored "1" and who did give incorrect or didn't know answer were scored "0". The total score of knowledge and the mean score about periodontal diseases were calculated. A total of 9 questions about periodontal health knowledge were included in the given questionnaire. The maximum score was 9 and minimum was 0. The knowledge scores were categorized into; poor knowledge (0-3), average knowledge (4-6) and good knowledge (7-9). The third segment of the questionnaire was to assess the respondent's oral health care practices, like tooth cleaning, type of toothbrush, tooth cleaning aids, frequency of changing toothbrush and interdental cleaning aids.

It is a self-administered anonymous questionnaire based study. The university staff was informed that the information provided by them would be confidential. The ethical approval for the study was taken from the Taibah University Dental Collage ethical committee. Ethical committee is responsible to review the proposal of study before giving approval to continue the study.

Collected data were analyzed using the Statistical Package for Social Services (SPSS version 21 Inc. Chicago, U.S.A. Chi-square test was used to determine the association between independent

variables (gender, age, education, duration of work, and cleaning of teeth) with the dependent variable (knowledge of periodontal diseases). The level of statistical significance was set at $P \leq 0.05$.

Results:

This study is comprised of 450 subjects, 250 were male and 200 female with an age ranged between 21 to 65 years and the mean age was 33.5 years. All the staffs contacted were participated in the study. Therefore response rate was 100%. The socio-demographic data are shown in Table 1.

Table 1: Socio-demographic presentation

Gender	N	%
Male	250	55.6
Female	200	44.4
Age	N	%
20-35 years	290	64.4
36-50 years	152	33.8
51-65 years	8	1.8
Marital Status	N	%
Married	314	69.8
Unmarried	130	28.9
Widow	6	1.3
Nationality	N	%
Saudi	387	86
Non-Saudi	63	14
Level of Education	N	%
Primary	16	3.6
Secondary	19	4.2
High School	121	26.9
Graduate and above	294	65.3
Duration of Work	N	%
Less than 10 years	306	68
More than 10 years	144	32

Figure 1 shows that a higher percentage of female (87%) had good periodontal knowledge, when compared to male (75.6%). Periodontal knowledge has a significant relation with the gender ($P = 0.010$).

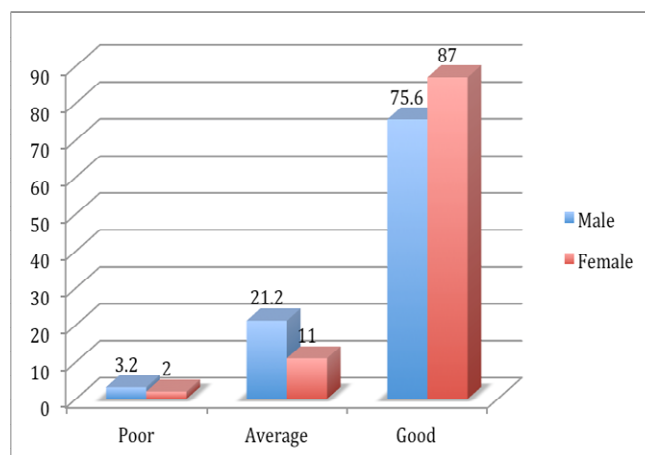


Figure 1: Gender wise percentages of participants have periodontal knowledge ($P=0.010$)

All participants belong to 51-65 years having good periodontal health knowledge followed by the age group of 36-50 years and 123(87%) having good oral health knowledge but there were no significant relation of periodontal health knowledge with age group ($P = 0.604$) Figure 2.

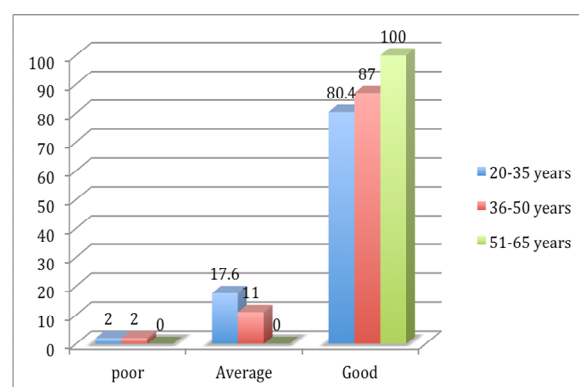


Figure 2: Age group wise percentages of participants have periodontal knowledge ($P = 0.604$)

There were slight differences of periodontal health knowledge among the participants who were less educated or highly educated. There was not any significant relation ($P=0.51$) Figure 3.

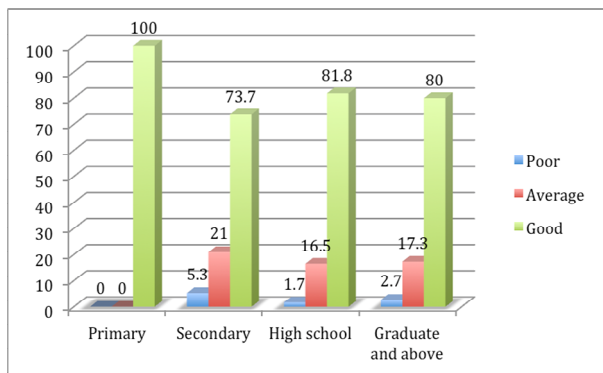


Figure 3: Periodontal health knowledge in relation with level of education ($P= 0.51$)

The number of participants whose working period was less than 10 years has more good knowledge 255(83.3), when compared with the participants that were working more than 10 years. There was a significant relation with the duration of work ($P= 0.03$) Figure 4.

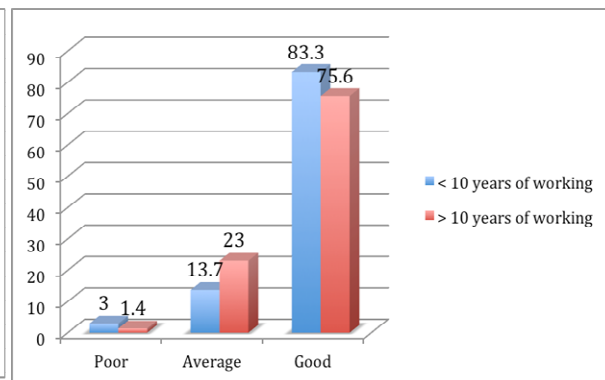


Figure 4: Periodontal knowledge in relation with duration of work ($P= 0.03$)

Table 2 shows the participants that visited a dentist in once every six months have 40(90.9%) good periodontal knowledge as compare to other (73.7%) who visited once in a year and (83.6%) visited when they felt dental problem. Periodontal knowledge has a highly significant relation with the visiting a dentist ($P< 0.001$)

Table2: Periodontal knowledge in relation with visiting dentist

Visited dentist	Poor N(%)	Average N (%)	Good N (%)	Total N (%)
When I have a dental problem	6(1.9)	47 (14.5)	271(83.6)	324(100)
Once a year	2(5.3)	6 (21)	35 (73.7)	43(100)
Once every six months	1(2.3)	3(6.8)	40(90.9)	44 (100)
Never visited	2(2.7)	19(17.3)	18(80)	39(100)

$P<0.001$

Maximum number of participants who used to clean their teeth two times a day 241(85.8%) had good periodontal health knowledge and there was a

significant relation with times of teeth cleaning ($P<0.001$) Table 3.

Table 3: Periodontal health knowledge in relation with times of cleaning teeth

How many times do you clean your teeth?	Poor N (%)	Average N (%)	Good N (%)	Total N (%)
One time a day	6(5.3)	13(11.4)	95(83.3)	114(100)
Two time a day	1(0.3)	39 (13.9)	241 (85.8)	281(100)
Occasionally	4(8.9)	17(37.8)	24(53.3)	45(100)
Never	0(0)	6(60)	4(40)	10(100)

$P< 0.001$

Table 4 shows that participants using toothbrush with toothpaste along with chewing sticks have more good periodontal health knowledge 89 (86.4%), when compared with the use of toothbrush or chewing stick alone. Periodontal health knowledge has highly significant relation with tools of cleaning teeth ($P < 0.001$)

Table 4: Periodontal health knowledge in relation with tools of cleaning teeth

Tools of cleaning teeth	Poor N (%)	Average N (%)	Good N (%)	Total N (%)
Toothbrush and toothpaste	7(2.3)	44(14.6)	251(83.1)	302(100)
Toothbrush/toothpaste with chewing stick	1(1)	13 (12.6)	89(86.4)	103(100)
Chewing stick	2(5.3)	16(42.1)	20(.52.6)	38(100)
Nothing	1(14.3)	2(28.6)	4 (57.1)	7(100)

$P < 0.001$

The participants that use dental floss for interdental cleaning had more good periodontal health knowledge 168(86.6%) table 5, when compare to toothpick or nothing, periodontal knowledge have highly significant in relation with the use of interdental cleaning aid or not ($P = 0.008$).

Table 5: Periodontal health knowledge in relation with interdental cleaning aids

Interdental cleaning	Poor N (%)	Average N (%)	Good N (%)	Total N (%)
Dental floss	3(1.5)	23 (11.9)	168(86.6)	194 (100)
Toothpick	3(1.7)	40(22.6)	134(75.7)	177(100)
Nothing	5(6.3)	12(15.2)	62(78.5)	79(100)

$P = 0.008$

Table 6 shows that participants who were getting preventive advice had good periodontal health knowledge 216 (91.2%) and there was a highly significant relation with the participants getting preventive advice ($P < 0.001$).

Table 6: Periodontal health knowledge in relation with preventive advice

Preventive advice of periodontal disease	Poor N (%)	Average N (%)	Good N (%)	Total N (%)
Yes	2(0.8)	19 (8)	216(91.2)	237 (100)
No	9(4.2)	56(26.3)	148(69.5)	213 (100)

$P < 0.001$

DISCUSSION

Most of the people are unaware about the relationship between oral hygiene and dental diseases such as periodontitis and dental caries. Therefore, oral hygiene has mostly remained as and ignored and unrealized social problem⁸. Periodontal diseases are common among adults with a prevalence that increases with the age increase. From the several studies it is observed that this is mainly due to ignorance related to oral hygiene.^{2,4} Most of people are ignoring their oral hygiene due to lack of oral health knowledge. This study attempted to assess the periodontal health knowledge among non-teaching staff of Taibah University. This study attempted to correlate the knowledge with gender, age, and education level along with oral hygiene practice such as tools of cleaning, times of cleaning teeth and visiting dentist for oral needs.

In our study females had more good oral health knowledge as compare to male (Figure 1). It may be due to females are more concerned about their esthetic and look. Many previous studies also reported similar to our study. Umeizudika KA also reported better periodontal health knowledge among females.³

The study showed that the participants who did visit dentist regularly for checkup six monthly had better periodontal health knowledge. Most of the primary health center, ministry of health, Saudi Arabia has dental units to provide dental health and they have instruction to provide oral health knowledge.^{9,10} Many other studies had also shown similar results^{9,10}

In this study the participants who cleaned their teeth with toothbrush and paste two times a day along with interdental cleaning by dental floss had good periodontal health knowledge. Many researchers had similar finding in their studies^{4, 6}. Poor knowledge of periodontal disease has also been reported in Nigerian studies among office workers of the hospitals because of not any health educational program among them.¹¹ Ashley 1996, Sofola 2010 reported better periodontal health knowledge who were aware of oral hygiene and cleaning their mouth properly and regularly^{5,12}

The participants who were getting preventive advice from different sources like dentist, TV, friends and relatives, had much more better knowledge in compared to the participants not getting preventive

advice. It is natural that they were aware of about oral health because of preventive advice.

In this study periodontal health knowledge score significantly associated with gender, educational level, times of cleaning teeth, interdental cleaning aids and visited dentist. In this study there is not any significant relation of periodontal health knowledge and level of education but contrast in the other studies there was significant association with education, this highlights the importance of formal education in enhancing oral health knowledge as demonstrated in other studies.^{13,14,15} The inadequate knowledge of periodontal diseases displayed by the participants could be attributed to their limited exposure to periodic oral health education programs within the University campus. Dental health educational and oral health checkup program mostly conducted in primary schools of Madinah by the college of dentistry, Taibah University.

Conclusion

Both males and females had good periodontal health knowledge but among females participant's percentage of periodontal health knowledge was higher. The staff who were regularly visiting a dentist and cleaning their teeth two time a days with cleaning tools had more periodontal health knowledge.

Recommendation

There is a need of health educator who should have adequate knowledge about periodontal diseases and are engaging in appropriate oral hygiene practices. Oral health educational programs and aids, like leaflet written oral hygiene instructions, educational posters and lectures, are needed in the campus of Taibah University.

Conflict of interest:

There are no conflicts of interest.

REFERENCES

1. Gholami M, Pakdaman A, Jafari A, Virtanen I. Knowledge of and attitudes towards periodontal health among adults in Tehran. *EMHJ* 2014; 20(3): 196-202

2. Jin LJ et al. Global oral health inequalities take group periodontal diseases. *Advances in Dental Research* 2011; 23: 221-226.
3. Umeizudika KA, Onajole AT, Ayanbadejo PO. Periodontal health knowledge of nonmedical professionals and their oral hygiene behavior in a teaching hospital in Nigeria. *Eur J Gen Dent* 2015; 4: 48-54.
4. Petersen PE, Ogawa H. The global burden of periodontal disease: towards integration with chronic disease prevention and control. *Periodontol* 2000 2012; 60: 15-39.
5. Ashley FP. Role of dental health education in preventive dentistry. In: Murry JJ, editor. *Prevention of Dental Diseases* UK: Oxford University Press: 1996. P 406-414.
6. Sofola OO. Implications of low oral health awareness in Nigeria. *Niger Med J* 2010; 51:131-133.
7. Bahammam MA. Periodontal health and diabetes awareness among Saudi diabetes patients. *Patient Preference and Adherence* 2015; 9: 225-233.
8. Alshehri AA, Alshehri FD, Hakami KY, Assiri ZA, Alshehri AA, Alqahtani ZA. Awareness and knowledge of periodontal disease among Saudi primary school teachers in Aseer region. *J Indian Soc Periodontol* 2017;21:403-8.
9. Petersen PE, Ogawa H. The global burden of periodontal disease: Towards integration with chronic disease prevention and control. *Periodontol* 2000 2012 ;60:15-39.
10. Sohn W, Ismail AI. Regular dental visits and dental anxiety in an adult dentate population. *J Am Dent Assoc* 2005;136:58-66
11. Omili M, Ofili AN, Omuemu V. Oral health perception among officers and men of the Nigerian prisons service . *Eur J Gen Dent* 2013;2:252-6.
12. Sofola OO. Implication of low oral health awareness in Nigeria. *Niger Med J* 2010;51:131-3.
13. Abiola A, Olayinka A, Mathilda B, Ogunbiyi O, Modupe S, Olubunmi O. A survey of the oral health knowledge and practices of pregnant women in a Nigerian teaching hospital. *Afr J Reprod Health* 2011;15:14-9.
14. Zavras AI, Vrahopoulos TP, Souliotis K, Silvestros S, Vrotsos I. Advances in oral health knowledge of Greek navy recruits and their socioeconomic determinants. *BMC Oral Health* 2002;2:4.
15. Rwakatema DS, Nganga PM. Oral health knowledge, attitudes and practices of parents/guardians of pre-school children in Moshi, Tanzania. *East Afr Med J* 2009;86:520-5.