

Oral health status and treatment needs of Iraqi and Yemeni dental students (A comparative study)

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ABSTRACT

The aim of this study is to compare oral health status (dental caries, periodontal disease and treatment needs) of Iraqi and Yemeni dental students.

The sample included 100 Iraqi dental students and 90 Yemeni dental students of fourth grade, age ranged between 22-23 years old of both sexes. The study revealed that there was a significant difference in the DMFT between Iraqi and Yemeni dental students for the total sample at $p < 0.05$ level, with significant difference between Iraqi and Yemeni dental students for both sexes at $p < 0.01$ level.

The results also revealed that there was no significant difference in the type of treatment required for the total sample between females of Iraqi and Yemeni dental students, but with significant difference in the treatment need between males of Iraqi and Yemeni dental students. Highest percentage of treatment need for Iraqi and Yemeni students were for 1 surface restoration.

The highest CPITN code percentage for Iraqi students was for code 2 (calculus) followed by code 1 with a significant difference between Iraqi males and females students at $p < 0.01$ level, while for Yemeni dental students the highest CPITN code percentage was for code 1 followed by code 2. There was a significant difference in the total sample between Iraqi and Yemeni dental students at $p < 0.01$ level; i.e., Iraqi students require scaling while Yemenis require oral health instruction.

Key Words: Oral health status, DMFT index, dental students.

Salman, FD, Qasim AA, Saleh KhM. Oral health status and treatment needs of Iraqi and Yemeni dental students (A comparative study). *Al-Rafidain Dent J.* 2005; 5(1): 46-51.

Received:

15/8/2004

Sent to Referees:

19/8/2004

Accepted for Publication:

18/12/2004

INTRODUCTION

Dental caries and periodontal disease are very important public health problems because of their high prevalence.⁽¹⁾ These two diseases spread widely that almost every body in the world is affected with one or both of them. Dental caries and periodontitis, although generally are not life threatening, are nevertheless of significant

importance.⁽²⁾ An understanding of the molecular nature of these diseases could aid the development of novel methods of prevention, control and increase our knowledge of their etiology.⁽³⁾

Dental caries is a bacterial disease modified by diet and condition in the mouth.⁽⁴⁻⁶⁾ Many other factors affecting prevalence and severity of dental caries as age,⁽⁷⁾

sex,^(8, 9) socioeconomic status,⁽⁸⁾ oral hygiene,⁽¹⁰⁾ fluoride⁽¹¹⁾ and race.⁽⁸⁾

MATERIALS AND METHODS

This study was conducted during the period between November 2001 to January 2002 among Iraqi and Yemeni dental students. A random sample was composed of 100 Iraqi students (62 males and 38 females) and 90 Yemeni students (77 males and 13 females); age range between 22–23 years old selected from the fourth grade. As a general rule observed in Yemen, female numbers are relatively low in comparison with male numbers. The clinical examination was carried out in the College of Dentistry using plane mouth mirrors, sharp sickle shaped explorers and periodontal probes to detect the dental plaque and gingival health.

The indices used for assessment of dental caries, gingival and periodontal co-

nditions were as follow:

- 1) DMFT by World Health Organization (1997)⁽¹²⁾ for caries status and treatment needs to obtain and calculate the Decayed “D”, Missing “M” and Filled “F” for each tooth.
- 2) CPITN by World Health Organization (1987)⁽¹³⁾ for assessment of gingival and periodontal health status and their treatment needs.

The statistical analysis of the data included the mean and standard error for dental caries and periodontal health using F, Fisher exact, and chi-square tests.

RESULTS

Table (1) shows the distribution of the sample by sex for Iraqi and Yemeni dental students (area of residence). One hundred Iraqi dental students (62 males and 38 females) and 90 Yemeni dental students (77 males and 13 females).

Table (1): Distribution of sample by sex for Iraqi and Yemeni students

Students	Males		Females		Total	
	No.	%	No.	%	No.	%
Iraqi	62	44.6	38	76	100	52.6
Yemeni	77	55.4	13	24	90	47.4
Total	139	100	51	100	190	100

Table (2) shows the mean DMFT and its components for Iraqi students for both sexes. It has been shown that the mean DMFT for the total sample was 6.34. The results revealed that the mean DMFT for females (7.76) was higher than that for the males with a significant difference between them at 0.05 level. The highest proportion was for DT followed by FT then MT.

Table (3) shows the mean DMFT and

its components by sex for Yemeni dental students. It has been shown that the mean DMFT for the total sample was 4.1. There was no significant difference between males and females Yemeni dental students.

The highest proportion was for DT followed by FT then MT, with a significant difference in the MT, FT but not in DT proportions.

Table (2): Mean DMFT and its components by sex for total sample of Iraqi students

Sex	No.	DMFT	DT	MT	FT
		Mean ± SE	Mean ± SE	Mean ± SE	Mean ± SE
Males	62	5.47* ± 0.43	3.08 ± 0.31	0.24 ± 0.06	2.21 ± 0.27
Females	38	7.76* ± 0.78	4.29 ± 0.78	0.52 ± 0.15	3.63 ± 0.63
Total	100	6.34 ± 0.41	3.54 ± 0.36	0.35 ± 0.07	2.75 ± 0.41

*Significant difference between males and females at p<0.05.

SE: Standard error.

Table (3): Mean DMFT and its components by sex for total sample of Yemeni students

Sex	No.	DMFT	DT	MT	FT
		Mean \pm SE	Mean \pm SE	Mean \pm SE	Mean \pm SE
Males	77	4.12 \pm 0.5	4.04 \pm 0.48	0.13 \pm 0.06	0.44 \pm 0.12
Females	13	4.0 \pm 1.14	2.62 \pm 0.90	0.00 \pm 0.0	1.54 \pm 0.73
Total	90	4.1 \pm 0.47	3.83 \pm 0.43	0.11 \pm 0.05	0.60 \pm 0.15

SE: Standard error.

Table (4) shows the percentage of treatment needs for the sample (both groups) by sex.

It has been shown that the highest percentage of treatment need for Iraqi and Yemeni dental students was for 1 surface restoration followed by 2 surfaces restoration then other types of dental treatment need.

The results showed that there was no significant difference in the treatment need for the total sample for both students' groups as well as for the females of the two groups but there is a significant difference for the male students.

Table (5) shows the number and percentage of Iraqi dental students distributed

according to the highest CPITN code by sex. It has been found that the highest percentage was for code 2 followed by code 1. The highest percentage was for males with a significant difference for codes 1 and 2 at 0.001 level.

Table (5) also shows the number and percentage of Yemeni dental students distributed according to the highest CPITN code by sex. It has been found that the highest percentage was for code 1 followed by code 2 with difference between them at $p < 0.001$ level.

As a total sample there was a significant difference between Iraqi and Yemeni dental students at $p < 0.01$ level.

Table (4): The percentage of treatment needs for the sample by sex for both Iraqi and Yemeni students

Students	Sex	Percentage of Treatment Needs						
		1	2	3	4	5	6	7
Iraqi	Males*	60.98	29.26	0	3.42	0.49	1.95	3.90
	Females	48.32	37.58	0	0.67	2.01	1.34	1.08
	Total	54.65	33.42	0	2.05	1.25	1.64	2.49
Yemeni	Males*	58.0	33.88	3.25	6.81	0	1.08	2.98
	Females	65.79	31.58	0	0.0	0	0	2.63
	Total	61.89	32.73	1.63	3.40	0	0.54	2.81

1: One surface filling; 2: Two or more surfaces filling; 3: Pulp care treatment; 4: Crown or veneer; 5: Other cares; 6: Extraction; 7: Replacement.

* Significant difference in treatment need between males of Iraqi and Yemeni students ($p < 0.05$).

DISCUSSION

The criteria selected for the assessment of caries experience in the study followed WHO Oral Health Surveys.⁽¹²⁾ This method ensures that the data collected in a wide range of environment is comparable. It also provides a standard measurement of oral disease and conditions as a base for planning and evaluating oral health. The results of this study have shown that the

mean DMFT for the total sample of Iraqi dental students was 6.34 and 4.1 for Yemeni students. This variation in the DMFT values may be attributed to differences in dietary habits of different communities especially consumption of refined sugars and may be attributed partly to the adoption of different diagnostic criteria in various studies.⁽⁹⁾

Table (5): Number and percentage of students distributed according to the highest CPITN codes by sex for Iraqi and Yemeni students

Students	Sex	No.	Healthy Code (0)		Bleeding Code (1)		Calculus Code (2)		Pathological Pocket Code (3)		Pathological Pocket Code (4)	
			No.	%	No.	%	No.	%	No.	%	No.	%
Iraqi	Males	62	3	4.8	22	35.5	36	58.1	1	1.6	0	0
	Females	38	1	2.6	11	28.9	23	60.5	3	7.9	0	0
	Total	100	4	4.0	33*	33.0	59	59.0	4	4.0	0	0
Yemeni	Males	77	7	9.1	32	41.6	32	41.6	6	7.8	0	0
	Females	13	0	0	11	84.6	2	15.4	0	0	0	0
	Total	90	7	7.8	43*	47.8	34*	37.8	6	6.7	0	0

Sex difference: For Iraqi students: Fisher exact test= 2.77, significant ($p < 0.001$).

For Yemeni students: Fisher exact test= 6.7, significant ($p < 0.001$).

Country difference: For males: Fisher exact test= 5.45, significant ($p < 0.001$).

For females: Fisher exact test= 11.43, significant ($p < 0.001$).

For total sample: Chi-square test= 4.9, significant ($p < 0.01$).

For CPITN codes: 0: Fisher exact test= 1.74, not significant ($p > 0.05$).

1: Chi-square test= 0.54, not significant ($p > 0.05$).

2: Chi-square test= 12.189, significant ($p < 0.001$).

3: Fisher exact test= 5.65, significant ($p < 0.05$).

The Iraqi female dental students have higher mean DMFT (7.76) than Yemenis. This is in accordance with the study of Al-Naimi.⁽⁹⁾

There was no significant difference in the mean DMFT of Yemeni dental students for both sexes. This result is in agreement with other studies.^(14, 15)

The study also revealed that the decayed component of the DMFT score had the greatest value. This means the presence of a high percentage of carious teeth that are untreated. This is in accordance with other studies in the developing countries.^(2, 14) This reveals the limited restorative approach in most of developing countries due to limited resources. This is in contrast to other studies in the developed countries where the majority of the DMFT index was formed of filled teeth and less missing teeth.^(16, 17)

Concerning Table (4), it has been shown that there was a high need for dental treatment. This is in contrast to the findings in Hong Kong where a very small proportion of students needed dental treatment. This may be attributed to implementation of water fluoridation.⁽¹⁸⁾ The Table shows that majority of Yemeni students were in need of 1 surface restoration. This result is in agreement with the results reported by other studies.^(19, 20)

While for the Iraqi students, the majority of them were in need of 2 surfaces restoration. This result was in accordance with those of Stahl and Katz,⁽²¹⁾ which show that the risk of occlusal caries has extended into the late and post-teenage years.⁽²²⁾

The Community Periodontal Index of Treatment Needs (CPITN) was used in this study to assess the periodontal disease status. This index since it was adopted by WHO and FDI has been used in many studies as a basic epidemiological tool for the assessment of the nature and magnitude of the need for periodontal treatment and as an aid for planning public dental services. The results of CPITN have shown that for Iraqi dental students only 4% of the students examined had healthy gingiva without any sign of periodontal disease, while for Yemeni students the percentage was 7.8%. This means that the prevalence of periodontal disease in this study was very high for both groups. This is in accordance with a study carried out in Baghdad by Al-Mufti.⁽²³⁾

The study also revealed that about half of the Yemeni dental students (47.8%) had bleeding gum with higher percentage for the females than for males. This is in contrast to what has been found in developed countries where females have better

oral hygiene because they practice regular and effective oral hygiene measures more than males.^(24,25) While for the Iraqi students the highest score was for calculus. This is in accordance with the results of other studies which found that calculus had the highest score.^(2, 7, 26, 27)

The percentage of students who needed scaling reflects the massive need for periodontal therapy. This condition is universal in most of the developing countries. This high need for professional treatment (scaling) can not be coped within these countries because it is quite expensive and costly. In addition to that it needs a lot of time and enormous number of dental personnel which can not be coped with the limited resources present in these countries. There should be more emphasis on primary prevention of periodontal disease by means of improvement of oral hygiene measures; in addition to setting health education programs for groups of students rather than giving oral hygiene instructions to individuals. This step will be less time consuming and more economical.

CONCLUSIONS

Dental caries experience in the sample was high and the risk of occlusal caries had extended into the late and post-teenage years that it is necessary to apply fissure sealant to the students' teeth in addition to dietary restriction of sugar.

Concerning periodontal disease, calculus is more prevalent among Iraqi students while bleeding gum is more prevalent among Yemeni students. So Iraqi students are in need of scaling while Yemeni students need intensive oral hygiene education program.

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