

Oral hygiene and gingival health among adult population (21-80) years in Thamar-Yemen

Faraed D Salman
BDS, MSc (Lect)

Rayia J Al-Naimi
BDS, MSc (Lect)

Ghada Dh Al-Sayagh
BDS, MSc (Assist Lect)

Department of Pedod, Orthod, and Prev Dent
College of Dentistry, University of Mosul

ABSTRACT

The aim of the study is to evaluate the oral hygiene and gingival health and to find if there is any variation between sex and age groups among adults aged 21-80 years in Thamar-Yemen.

A sample of 224 individuals aged 21-80 years (177 males and 47 females) were examined using plaque index by Silness and Loe (1964) and gingival index by Loe and Silness (1963).

The results showed that the mean plaque score for the total sample was 1.15; the plaque index was increasing with age significantly. Males reported higher means than females with statistical significant difference in the 3rd, and 5th age groups; while at the 4th age group the females reported significantly higher plaque scores than males.

The mean gingival score for the total sample was low (0.84) and it was increasing with age significantly. The mean gingival score was slightly better in males than females with statistical significant difference in all age groups except the 5th age group where the females showed better gingival health.

Therefore, the objective of dental health education to those adults is to improve the effectiveness of oral hygiene practice by tooth brushing and interdental aids.

Key Words: Oral hygiene, gingival health, adults.

الخلاصة

إن الهدف من هذه الدراسة هو تقييم حالة التهاب اللثة ونظافة الأسنان، ولمعرفة وجود أي اختلاف بين الجنسين أو الفئات العمرية للبالغين في محافظة ذمار - اليمن.

جرت الدراسة على عينة مكونة من ٢٢٤ شخص تتراوح أعمارهم بين ٢١ - ٨٠ سنة (١٧٧ ذكر و ٤٧ أنثى) تم فحصهم باستعمال دليل اللويحات الجرثومية ودليل التهاب اللثة وتبين من النتائج أن معدل اللويحات الجرثومية كان ١.١٥ لمجموع العينة وكان المعدل يزداد مع العمر بدلالة إحصائية وأن المعدل عند الذكور كان أعلى من الإناث بدلالة إحصائية للفئات العمرية الثالثة والخامسة، بينما في الفئة العمرية الرابعة كان معدل اللويحات الجرثومية في الإناث أعلى مما في الذكور بدلالة إحصائية معنوية.

أما معدل التهاب اللثة لمجموع العينة فكان قليلاً (٠.٨٤) وكذلك ازداد مع زيادة العمر بدلالة إحصائية؛ وكان المعدل عند الذكور أفضل من الإناث بدلالة إحصائية لكل الأعمار ما عدا الفئة العمرية الخامسة حيث أن الإناث كن بوضع لثوي أفضل من الذكور.

إن الغاية من التثقيف الصحي لهذه العينة هو تحسين حالة نظافة الفم باستعمال فرشاة الأسنان والمعجون والوسائل الأخرى.

INTRODUCTION

Periodontal disease is present in almost all persons with natural teeth irrespective of their age and race.⁽¹⁻⁷⁾ Periodontal disease is one of the major adult oral problems and the principal reason for tooth loss in persons older than 35 years old.^(8, 9) It is more prevalent among developing countries.⁽¹⁰⁻¹²⁾ It increases with increasing age which has a significant effect on gingival health and periodontal disease.⁽¹³⁾ Oral hygiene is the most important factor for the health of periodontal tissue; the most important oral hygiene habit is by the regular and proper technique of tooth brushing and the use of interdental aids to control and prevent periodontal disease.^(14, 15)

So, the aim of this study was to evaluate gingival health among adult population and to find if there is any sex difference among these age groups.

MATERIALS AND METHODS

The study was conducted in Thamar Governorate in Arab Yemen Republic. Two hundred and twenty four individuals aged 21–80 years, who were attending the only two medical hospitals at the Governorate for different systemic diseases, were selected randomly for examination by one examiner.

As a general rule observed in the country, females numbers are relatively low in comparison with the males.

The clinical examinations were carried out in the hospitals using dental chair unit. Mouth mirrors and WHO periodontal probes were used to detect the dental plaque and gingival health.⁽⁸⁾

The indices used for assessment of dental condition were used as follow:

- 1) Plaque index by Silness

and Löe to evaluate the oral hygiene of the individuals.⁽¹⁶⁾

- 2) Gingival index by Löe and Si-Inness⁽¹⁷⁾ to evaluate the gingival health of the individuals.

Indexed teeth examined were: Upper right first molar and lateral incisor, upper left first premolar, lower left first molar and lateral incisor, and lower right first premolar. When any tooth was not present, the adjacent tooth was examined. The measurement of plaque and gingivitis was carried out for the four surfaces of each indexed tooth.

Additional information regarding this study such as age and sex were recorded on a special form.

The statistical analysis of the data included the mean and standard error for plaque and gingival indices. The differences in plaque score and gingival health between age groups and between males and females were tested statistically using Duncan's Multiple Range Test and analysis of variance (ANOVA) test.

RESULTS

There were 224 individuals comprising 79% males and 21% females. The population sample is divided into 5 age groups as shown in Table (1).

Mean plaque index scores are shown in Table (2) according to sex and age groups. The mean plaque for the total sample was 1.13 and the males reported higher mean than females in the first, third and fifth age groups and also the total except the second and fourth age groups. The study revealed that the mean plaque is increased with age with significant difference at 0.05 level.

Table (1): The number and percentage of individuals distributed according to sex and age groups

Age Group	No. (%)		
	Males	Females	Total
21–30	60 (33.9)	16 (34.0)	76 (34.0)
31–40	35 (19.8)	13 (27.7)	48 (21.4)
41–50	28 (15.8)	9 (19.1)	37 (16.5)
51–60	33 (18.6)	6 (12.8)	39 (17.4)
≥ 61	21 (11.9)	3 (6.4)	24 (10.7)

Total	177 (100)	47 (100)	224 (100)
--------------	-----------	----------	-----------

Table (2): The mean and standard error of plaque index according to sex and age group

Age Group	Mean ± SE		
	Males	Females	Total
21–30	0.78 ± 0.05 ^a	0.74 ± 0.10 ^a	0.77 ± 0.05 ^A
31–40	1.11 ± 0.11 ^{ab}	1.18 ± 0.09 ^{ab}	1.13 ± 0.08 ^B
41–50	1.45 ± 0.10 ^{bc}	1.36 ± 0.19 ^b	1.43 ± 0.09 ^{BC}
51–60	1.31 ± 0.10 ^{bc}	1.52 ± 0.29 ^b	1.34 ± 0.09 ^{BC}
≥ 61	1.63 ± 0.32 ^c	1.58 ± 0.09 ^b	1.62 ± 0.30 ^C
Total	1.15 ± 0.05	1.10 ± 0.08	1.13 ± 0.03

Al-Rafidain Dent J
Vol. 4, No. 1, 2004

Means of total with different letters are statistically significant at 0.05 level.

Means between groups with different letters are statistically significant at 0.0001 level.

SE: Standard error.

Table (3) shows the mean gingival score according to sex and age groups. The mean for the total sample was 0.84. Females reported higher mean gingival

score than males but the difference was not found to be statistically significant. The mean gingival score was increased with age significantly at 0.05 level.

Table (3): The mean and standard error of gingival index according to sex and age group

Age Group	Mean ± SE		
	Males	Females	Total
21–30	0.48 ± 0.05 ^a	0.48 ± 0.07 ^a	0.48 ± 0.04 ^A
31–40	0.82 ± 0.10 ^{ab}	1.05 ± 0.12 ^b	0.88 ± 0.08 ^B
41–50	0.91 ± 0.10 ^b	1.30 ± 0.20 ^b	1.00 ± 0.09 ^B
51–60	1.91 ± 0.11 ^b	1.25 ± 0.23 ^b	0.96 ± 0.10 ^C
≥ 61	1.42 ± 0.33 ^c	1.24 ± 0.24 ^b	1.39 ± 0.20 ^C
Total	0.81 ± 0.04	0.93 ± 0.07	0.84 ± 0.04

Means of total with different letters are statistically significant at 0.05 level.

Means between groups with different letters are statistically significant at 0.0001 level.

SE: Standard error.

DISCUSSION

Periodontal disease is present in almost all persons with natural teeth. It starts with gum tissues (gingivitis) or may involve the deeper supporting tissues (periodontitis). It is caused by dental plaque which is formed at tooth–gum junction and between the teeth. Plaque starts to accumulate soon after the tooth surface has been cleansed.^(14, 18)

The data reported here show that for

the Yemenis population aged 21–80 years, the mean plaque score for the total sample was moderate (1.15). The plaque index score increased with age and there was a significant difference between the first, second, third and fifth age groups. This finding is in agreement with other studies.^(19–21)

The females reported less mean plaque score in the first, third and fifth age groups, with statistical significant

difference between the third and fifth age groups. This was in accordance with other studies.^(22, 23)

The mean gingival score for the total sample was low (0.84), and it was increased with age significantly between the first, second, third and fifth age groups. That means the youngest age groups (21–30 years) have healthier gingiva than the older age groups. This means that this age group care for their gingival health in addition to that the disease is accumulative in nature.⁽²⁴⁾

Females reported higher mean gingival index than males with no statistical significant difference. This was in contrast with other studies carried out in developing countries that reported no difference between sexes in gingival health.⁽²⁴⁻²⁷⁾

Regularly reported tooth cleaning instruction and prophylaxis are possible to stimulate adults to adopt proper oral hygiene habits together combined with dental plaque control programme seem to be the only effective and practical measures available for the prevention and control of periodontal disease for those population in the country.^(13, 28-31)

CONCLUSIONS

A review of epidemiological surveys of the periodontal conditions of people have shown that gingivitis associated primarily with plaque is very common in some population groups. Females reported less mean plaque score than males because females care much about their looking. The gingival health score was increasing with age due to the accumulative nature of the disease. Majority of the subjects needs oral health education by tooth brushing, dental flossing and other interdental aids.

REFERENCES

- 1) Kelly JE, Van Kirk LE. Periodontal disease in adults: United States 1960–1962. Public Health Publication No. 1000, Series 11, No. 12. Washington DC: US Government Printing Office. 1965.
- 2) Lehner T. Future possibilities for the prevention of caries and periodontal

- disease. *Br Dent J.* 1980; 149: 318-325.
- 3) Ramfjord SP, Emslie RD, Greene JC, Held AJ, Waerhaug J. Epidemiological studies of periodontal diseases. *Am J Public Health.* 1968; 58: 1713-1722.
- 4) Becker W, Berg L, Becker BE. Untreated periodontal disease. A longitudinal study. *J Periodontol.* 1979; 50: 234-244.
- 5) Gray PG, Todd JE, Slack GL, Bulman JS. Adult dental health in England and Wales in 1968. London: HMSO. 1970.
- 6) Anerud A, Loe H, Boysen H, Smith M. The natural history of periodontal disease in man. Changes in gingival health and oral hygiene before 40 years of age. *J Periodont Res.* 1979; 14: 526-540.
- 7) Lindhe J, Khaffajee AD, Socransky SS. Progression of periodontal disease in adult subjects in the absence of periodontal therapy. *J Clin Periodontol.* 1983; 10: 433-442.
- 8) World Health Organization. Epidemiology, Etiology and Prevention of Periodontal Diseases. Report of a WHO Scientific Group. Geneva, World Health Organization. Technical Report Series No. 621. 1978.
- 9) Miyazaki H, Pilot T, Ledereq MH, Barms DE. Periodontal Profiles: An Overview of CPITN Data in the WHO Global Oral Data Bank for the Age Group 15–19 Years, 35–44 Years and 65–74 Years. Geneva, World Health Organization. 1992.
- 10) Baelum V, Manji F, Fejerskov O, Wanzala P. Validity of CPITN's assumption of hierarchical occurrence of periodontal condition in a Kenyan population aged 15–65 years. *Community Dent Oral Epidemiol.* 1993; 21: 347-353.
- 11) Rahimah AK. Profile of periodontal conditions in selected West Malaysian adults. *Singapore Dent J.* 1994; 19: 4-7.
- 12) Peterson P, Razanamihaga N. Oral health status of children and adults in Madagascar. *Int Dent J.* 1996; 46: 41-47.
- 13) Sheiham A, Striffler DF. A comparison of four epidemiological methods of assessing periodontal disease. II. Test

- of periodontal indices. *J Periodont Res.* 1970; 5: 155-161.
- 14) Löe H, Anerud A, Boyson H, Smith M. The natural history of periodontal disease in man. *J Periodontol.* 1978; 49: 607-610.
- 15) Honkala E. Oral health promotion with children and adolescents. In: Shou L, Blinkhorn A (eds). *Oral Health Promotion.* Oxford University Press. 1993; Pp: 669-687.
- 16) Silness J, Löe H. Periodontal disease in pregnancy. II. Correlation between oral hygiene and periodontal condition. *Acta Odontol Scand.* 1964; 22: 121-135.
- 17) Löe H, Silness J. Periodontal disease in pregnancy. I. Prevalence and severity. *Acta Odontol Scand.* 1963; 21: 533-551.
- 18) Löe H, Theliade E, Jensen S. Experimental gingivitis in man. *J Periodontol.* 1965; 36: 177-187.
- 19) Athanassouli T, Kolesti KH, Mami H, Panagopulos H. Oral health status of adult population in Athens, Greece. *Community Dent Oral Epidemiol.* 1990; 18(2): 82-84.
- 20) Nowjack R, Ainoma J, Suomi J, Kingman A, Driscoll W, Brown L. Improved periodontal status through self assessment. A 2 year longitudinal study in teenagers. *J Clin Periodontol.* 1995; 22(8): 603-608.
- ٢١) الشيخ عبدال، عبد الخالق؛ خمركو، طارق يوسف. حالة صحة الفم والأسنان في قرية الشريخان. مجلة كلية طب الأسنان. ٢٠٠٠؛ ٦: ١٥٠-١٥٦.
- 22) Makani LA. Evaluation of trials of dental health education in improving gingival health. MSc thesis. College of Dentistry. University of Mosul. 1998.
- 23) Ali NA. A comparative study evaluating the effect of dental health education programs on the oral health status of 12 years old students in Baghdad. MSc thesis. College of Dentistry. University of Baghdad. 1999.
- 24) Khamrco TY. Assessment of periodontal disease using CPITN index in a rural population in Ninevah, Iraq. *East Mediterr Hlth J.* 1999; 5(3): 549-555.
- 25) Gupta O. Periodontal disease in Travendram, India. *J Dent Res.* 1964; 43: 876 (Abstr).
- 26) Khamrco TY, Al-Salman KhA. Dental health status among 4th-8th school children in the center of Mosul. *Iraqi Dent J.* 1998; 23: 77-88.
- 27) Al-Naimi RJ, Khamrco TY. Oral health status and treatment needs in 13-15 years old students in Mosul City, Iraq. *J Coll Dent.* 1999; 5: 90-100.
- 28) Lennon MA. An investigation into screening for periodontal care in a population of 15-year-old children. MDS thesis. University of Manchester. 1974. Cited by: Sheiham A. Screening for periodontal disease. *J Clin Periodontol.* 1978; 5: 237-245.
- 29) Johansen JR, Gjermo P, Haugen E. The need for periodontal treatment in the urban population. *J Clin Periodontol.* 1975; 2: 226-230.
- 30) Axelsson P, Lindhe J. Effect of controlled oral hygiene procedures on caries and periodontal disease in adults. *J Clin Periodontol.* 1978; 5: 133-151.
- 31) Djukanovic D. The prevalence of periodontal disease in children and young adults in Yugoslavia. *Int Dent J.* 1986; 36: 182-188.

Received: 20/12/2003

Accepted for Publication: 12/6/2004