Oral hygiene and gingival health among school children in Thamar Governorate in Republic of Yemen

Faraed D Salman B.D.S, M.Sc *

Abstract:

The aim of this study is to evaluate the oral hygiene and gingival health among primary school children and to find if there is any variation between age and sex groups in Thamar Governorate in Republic of Yemen.

A sample of 532 child aged 6-12 years old (257 males, 275 females) were examined using plaque index score by Silness and Löe (1964) and gingival index by Löe and Silness (1963). The results show that the mean plaque score for the total sample is (0.82), the plaque index was increasing with age, and the females reported less mean plaque scores than males with statistically significant difference between them.

The mean gingival score was 0.5 for the total sample and it was increasing with age with no statistical significant difference. There was significant difference between females (0.4) and males (0.6).

The study revealed that 51% of the total sample did not brush their teeth. Therefore great attention should be directed toward the dental health education to those children by teaching them brushing their teeth frequently, regularly and insurance primary prevention to improve the effect of oral hygiene practice.

Key words:

Oral hygiene, plaque index, gingival index,primary school children.

Introduction:

Periodontal disease (PD) is one of the most widespread disease of mankind [1]. It is more prevalent among populations of the developing countries, most children have gingivitis of varying severity and progress with age to periodontitis [2, 3],it appears at an early age in these countries in contrast to the appearance of the disease in developed countries [4, 5].The increasing awareness of the prevalence of gingival and periodontal disease in children is coupled with the need for more information regarding the early stages of PD diseases, has focused attention upon the periodontium in childhood[6, 7].

* Lecturer in the Department of Pedodontic, Orthodontic and Preventive Dentistry, College of Dentistry, University of Mosul

Materials and methods:

This study was conducted in Thamar Governorate in the Republic of Yemen.

The sample of the study was composed of 532 primary school children aged 6-12 years old (257 males, 275 females) randomly selected from eight primary schools.

The sample was divided into 3 age groups namely 6, 9, 12 years old, these ages represent the first, middle, and the last years of primary schooling.

The clinical examinations were carried out in the schools using adequate daylight, plane mouth mirror and WHO periodontal probe to detect the dental plaque and gingival health [8].

The indices used for assessment of gingival and periodontal conditions were as follow:

1-Plaque Index by Silness and Löe to evaluate the oral hygiene of the children [9].

2-Gingival Index by Silness and Löe to evaluate the gingival health of children [10].

The statistical analysis of the data included the mean and standard error for plaque and gingival indices using ANOVA, Duncan multiple range test and F-test.

Differences were tested for their significancy for gingival index and plaque index at (0.01) level.

Result:

There were (532) primary school children comprising (49.4%) males and (51.6%) females, the population sample was divided into three age groups as in Table (1).

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

Age Groups	Male	Female	Total
6	80	72	152
9	84	110	194
12	93	93	186
Total	257 (49.4%)	27.5 (51.7%)	532

Table (2) shows the number and percentage of children according to the frequency of tooth brushing. The study indicates that about 51% of the sample did not brush their teeth. The males reported more frequently brush their teeth 35% than females (18.2%), also younger age groups 6 and 9 years old

more frequently than older age group 12 years old.

Table (2): Frequency and percentage distribution of children according to tooth brushing by sex and age groups

Age Groups	Male				Female			
	Never	Infrequent	Once	Twice or more	Never	Infrequent	Once	Twice or more
6	50 62.5%	22 27.5%	6 7.3%	2 2.5%	31 43.1	27 37.5%	8 11.1%	6 8.3%
9	28 33.3%	13 15.5%	22 26.2%	21 25.0%	51 46.4%	32 29.1%	21 19.1%	6 5.5%
12	35 37.6%	19 20.4%	20 21.5%	19 20.4%	66 71%	18 19.4%	5 5.4%	4 4.3%
Total	113 44%	54 21%	48 18.7%	42 16.3%	148 53.8%	77 28.0%	34 12.4%	16 5.8%

Table (3) shows plaque index scores according to sex and age groups. The mean plaque for the total sample was (0.82) and the males reported higher mean than females in all age groups and the total also higher than females with statistical significant difference between male and female at (p = 0.01) level. The study shows that the mean plaque increases with age and there was a significant difference between the age 6 and 9 years old, 6 and 12 years old in male but with no statistical difference between 9 and 12 years old. While in females there was significant difference between all age groups.

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

Age Groups	Male	Female	Total
6	0.73 ± 0.29^{a}	0.61 ± 0.32^{a}	0.67 ± 0.31^{a}
9	0.97 ± 0.38^{b}	0.93 ± 0.36^{c}	0.95 ± 0.37^{c}
12	0.88 ± 0.38^{b}	0.74 ± 0.37^{b}	0.81 ± 0.38^{b}
Total	0.86 ± 0.37	0.78 ± 0.37	0.82 ± 0.37

Significant difference between 3 age groups at p=0.01, F=6.6

Means with the same letters are statistically not significant (p>0.05).

Table (4) shows the mean gingival score according to sex and age groups. The mean for the total sample was (0.50). Males reported higher mean

gingival score than females; this difference was found to be significant at ($p < 0.0001$) for the total sample.

Table (4): The mean and standard error of gingival index according to sex and age groups.

Age Groups	Male	Female	Total
6	0.36 ± 0.19^a	0.34 ± 0.26^a	0.35 ± 0.23^a
9	0.72 ± 0.50^b	0.48 ± 0.35^b	0.58 ± 0.44^b
12	0.70 ± 0.65^b	0.36 ± 0.26^a	0.53 ± 0.46^b
Total	0.60 ± 0.48	0.40 ± 0.31	0.50 ± 0.41

Significant difference between males and females at $p < 0.0001$ level, F=30.3
Means with the same letters are statistically not significant ($p>0.05$).

Discussion:

Tooth brushing data indicated that about 51% of the sample did not brush their teeth. As in most of studies females reported higher percentages than males, the percentage of subjects brushes their teeth is in accordance with many studies carried out in developing countries [11, 12] and less than many studies carried out in developed countries [13, 14].

Concerning sex variation in relation to tooth brushing this study revealed that males reported more frequently brush their teeth (35%) than females (18.2%)once or twice daily, this finding was not in agreement with other studies carried out in developing and developed countries [15-18].

The mean plaque score for the total sample was 0.82 there was a significant difference between the three ages, this finding is in agreement with other studies carried out in developing and developed countries [19-22].

Females reported less mean plaque score than males. There was statistically significant difference, this was not in accordance with studies carried out in developing & developed countries [17, 19].

The mean gingival score was (0.5) for the total sample and it increases with the first two ages, then decrease at the third age, that mean the younger age group has healthy gingiva than older one because tooth brushing is associated with grouping and personal hygiene [23].

This study shows that the gingival health in female is better than males with statistical significant difference because females care much about their looking and they brush frequently more than males [14, 18, 24].

This confirms the finding of other studies carried out in developing countries that reported better periodontal conditions in females than males [25-29] and many studies in the developed countries [30-33].

Referances:

1. World Health Organization: Epidemiology, Etiology and Prevalence of PD Disease. WHO Technical Report Series No 621 World Health organization, Geneva Switzerland 1978.
2. Mattson L, Goldberg P: Gingival inflammatory reaction in children at different ages. J Clin Periodontol 1995; 12: 98-101.
3. Khamrco TY: Assessment of periodontal disease using the CPITN index in a rural population in Ninevah, Iraq. East Mediterr Health J 1999; 5(3): 549-555.
4. Baelum V, Fejerskov O, Mauji F: Periodontal disease in adult Kenyans. J Clin Periodontol 1988; 15: 445-452.
5. Rahimah AK: Profile of PD conditions in selected west Malaysian adults. Singapore Dent J 1994; 19: 4-7.
6. Bradley RF: Periodontal lesions of children, their recognition and treatment. Dent Clin North Am 1961; 5: 671.
7. Thomas BOA: The child patients a future periodontal problem. J Am Dent Assoc 1947; 35: 763.
8. World Health Organization: Epidemiology Etiology and the Prevention of PD Disease. WHO Technical Report Series No 621 World Health organization Geneva Switzerland 1978.
9. Silness J, Löe H: Periodontal disease in pregnancy II Correlation between oral hygiene & PD condition. Acta Odontol Scand 1964; 22: 121-135.
10. Silness J, Löe H: Periodontal disease in pregnancy I Prevalence and severity. Acta Odontol Scand 1963; 21: 533-551.
11. Al-Alousi W, Al-Sayyab M: Plaque gingival condition and brushing behavior in 15-years old Iraqi school children in the central region of Iraqi. Iraqi Dent J 1996; 18: 127-136.
12. Honkala E, Freeman R: Oral hygiene behavior & PD status in European adolescents an overview. Community Dent Oral Epidemiol 1988; 16 (4): 194-198.
13. Honkala E, Kannas L, Rise J: Oral health habits of school children in II European countries. Int Dent J 1990; 40(4): 211-217.
14. 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.
15. Löe H, Theilade E, Jensen S: Experimental gingivitis in man. J Periodontol 1965; 36: 177-187.
16. Makani LA: Evaluation of trials of dental health education in improving gingival health. MSc Thesis College of Dentistry University of Mosul 1998.
17. Chen M, Andersen R, Barms M, leclereq M, Lyttle C: Comparing oral Health care system. A second international collaborative study World Health Organization. Geneva 1997.
18. Griffiths G: Periodontal disease and malocclusion in 11 to 12 years old school children in South Wales. MSc D Thesis University of Wales 1984.
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, Dri SGllW: Assessment a 2 year longitudinal study in teenagers. J Clin Periodontol 1995; 22(8): 603-608.
21. Cumming B, Löe H: Consistency of plaque distribution in individuals without special home care instruction. J Periodont Res 1973; 8: 94-100.
22. Al-Dahan Z, Al-Dean L: Gingival health status among children and teenagers in Fingan village Baghdad. Iraqi Dent J 1998; 23: 97-107.

23. Wearhaug J: Prevalence of dental disease in Ceylon association with age sex oral hygiene and periodontal condition. Acta Odontol Scand 1967; 22: 121-135.
24. Al-Sayyab MA: Oral health status among 15 years old school children in the central region of Iraq. MSc Thesis College of Dentistry University of Baghdad 1989.
25. Al-Sayyab M, Al-Alousi W, Al-Dujaili D: Periodontal treatment needs among 15 years old Iraqi school children in the city of Baghdad. Accepted for publication in J Coll Dent 1991.
26. Al-Beriuti N, Teifour MT, Boulon S: Oral health status and periodontal disease among school children in Syrian Arab Republic. East Mediterr Health J 1996; 2(2): 304-310.
27. Ghali RF: Oral health status and treatment needs among students of Baghdad University. MSc Thesis. College of Dentistry University of Baghdad 1989.
28. Douglass W, Gillings D, Sollectio W, Gammon M: National trends in the prevalence and severity of the periodontal disease. J Am Dent Assoc 1983; 107: 403-412.
29. Hansen BF, Gjermo P, Bergwitz-Larsen KR: Periodontal bone loss in 15 year old Norwegians. J Clin Periodontol 1984; 11: 125-131.
30. Sutcliffe P: A longitudinal study of gingivitis and puberty. J Dent Res 1972; 7: 52-58.
31. Todd JE: Children dental health in England and Wales. HMSO London 1973.