

Periodontal Status and Treatment Needs Among 12 Years Old School Children in Baghdad

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Abstract

Epidemiological data regarding gingival health and oral status in 688 school children aged 12 years old from different geographical sites in Baghdad were obtained and analysed on the basis of sex, region and socio-economic status differences.

On the basis of the findings, a relatively high percentage of the subjects demonstrated the presence of gingivitis and plaque (82.63%) with no sign of any destructive periodontal disease.

A better periodontal status in urban areas was reported and compared with the rural population, and in a higher socio-economic group than the group with lower status.

A significant difference was reported between sexes; girls had better periodontal status than boys, in both urban and rural regions.

Regarding the treatment need 14.09% of the total sample needed dental health education, 67.01% needed dental health education and prophylaxis, while 18.87% needed gingival treatment.

The finding emphasizes a need for immediate implementation of oral hygiene and prophylaxis program for prevention of gingival disease to achieve the ultimate goal which is the preservation of intact dentition for life.

Keywords: *Periodontal Status; School Children in Baghdad*

Introduction

The WHO scientific group on epidemiology, etiology and prevention of periodontal diseases pointed out the widespread nature of gingivitis in young children, and that early sign of periodontal diseases are frequently evident by the second decade of life [1].

An overview of WHO data collected from 39 countries and analysed at the global data bank (GOOB) shows that gingivitis is universal and is common to endemic in young populations [2-4].

The Current epidemiological evidence shows that gingivitis affects over 80% of adolescents [5-7] and its prevalence, extent and severity vary according to age, sex race, geographic, social, local oral and systemic factors, however this information is readily available in epidemiological literature as well as in clinical studies conducted by many investigators [7-12].

Recently more attention has been focused on children since it is accepted that gingivitis is often the precursor to the damage of the supporting structure which results in extensive loss of natural dentition later in life [13-15].

However, epidemiological data on periodontal status in young children in Baghdad have been relatively lacking, so this survey was undertaken to serve as a baseline prevalence figure on for health, plaque and calculus, as well as the treatment need to provide a guide for future oral healthcare planning.

Materials and Methods

Three regional sites in central Baghdad were chosen for the study (Al-Mansoor, Al-Aadamia, And Al Thawraa city), according to the majority of socio-economic status of the citizen (high, middle and low social class). In addition, two rural areas were included in the study (Al- Rashidia and Abu- Gharabe) to permit comparisons based on different geographical areas.

A two-stage random sampling procedure was adopted in which a total of 12 schools geographically distributed throughout the city of Baghdad were selected; 4 schools from each regional site, besides 4 schools from rural areas.

The study population consisted of 688 children selected randomly from respective schools and sub grouped according to sex, family occupation, and Urban- rural variables.

The clinical examinations were carried out at each school and wherever possible subjects were placed in supine position and examined in conditions of good natural lighting. The examinations were conducted by two examiners (S.M and B.H) using a plane mouth mirror and explorer.

The intra examiner of 100 children revealed high reproducibility.

The diagnostic criteria and recording methods followed the WHO (1997) oral health survey basic methods.

Results

A) Prevalence of gingivitis (all children)

The results are presented in (Table 1) Gingivitis was present in 82.63% and absent in only 4.80% of the surveyed population, which indicated a high prevalence of the disease among this youth group.

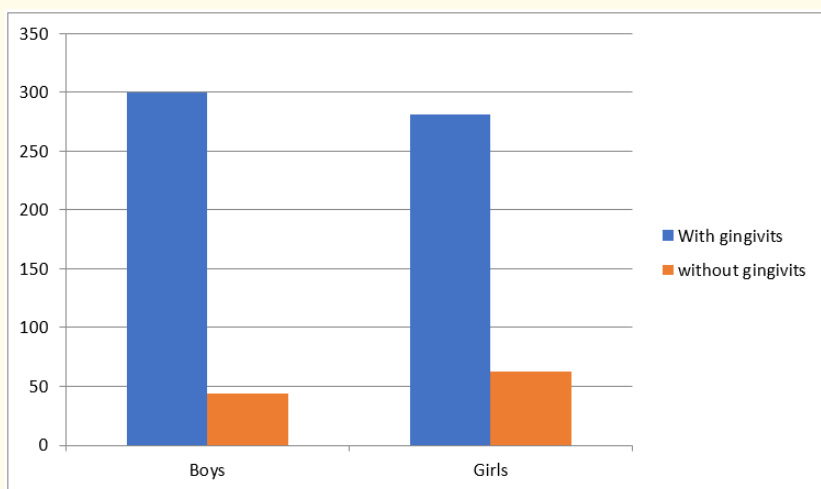


Figure 1: A comparison of boys and girls with and without gingivitis.

Sex	With Gingivitis		Without Gingivitis	
	Number	Percentage %	Number	Percentage %
Boys	300	90.90	44	9.05
Girls	281	86.36	63	13.64
Total	581	82.63	107	14.80

Table 1: The number and percentage of school children examined with and without gingivitis.

Table 2 shows that the mean score for intense gingivitis of the total sample which was 3.35, based on the number of segments of the mouth that were affected, which describes the gingival status as ranging from moderate to severe.

Number of children	Children with no sign of periodontal diseases %	Soft deposit x̄ S.D	Calculus x̄ S.D	Gingivitis x̄ S.D
688	14.80	4.1 ± 65	0.8 ± 14	3.35 ± 6.49

Table 2: Periodontal status among 12 year old children in Baghdad.

The association of the prevalence of gingivitis with region is summarised in table 3.

Region	Number of children	Percentage of free children	Mean soft deposit	Mean calculus	Mean gingivitis
Urban	526	16.53	3.58	0.68	2.48
Rural	162	6.17	4.65	0.87	3.06
Total	688	14.80	41	0.81	3.53

Table 3: Periodontal status among 12 year old children according to region.

16.53% of urban children showed no sign of gingivitis, while 6.17% of rural children were caries free. The intensity of gingivitis was higher in rural areas (3.06) than in urban areas (2.48). This finding was statistically significant ($P < 0.05$) which attributed to a better periodontal status among urban children.

Regarding sex difference, girls always had better periodontal status than boys in both urban and rural areas. (Table 4) presents the percentage of urban boys with no sign of periodontal disease (14.40%) compared to 18.63% of girls. The same finding was detected in rural children, however, table 4 shows that the intensity of gingivitis in boys exceeded that of girls. The mean score of gingivitis for boys was 4.20 compared to 2.91 for girls; the observed difference is alternatively significant ($P < 0.05$)

Sex	Number	% of children with no sign of periodontal disease	Mean Deposit	Mean Calculus	Mean gingivitis
Boys	344	11.91	4.72	0.84	4.20
Girls	344	16.27	3.50	0.71	2.91
Total	688	14.80	4.10	0.80	3.53

Table 4: Periodontal status among 12 year old children in Baghdad according to sex.

The prevalence of gingivitis in relation to socio-economic status is presented in table 6. For the purpose of this analysis only urban children were classified for their socio-economic status.

The finding shows that the prevalence of gingival disease is greater in school children from low social class families (92.82%), than those from high social class families (77.46%).

A lower severity of gingival inflammation was observed in children from middle and high social classes; the mean gingival score of low social class was 4.14, compared to 1.91 for high social class. The difference between the three social classes found to be statistically significant ($P < 0.05$).

B) Intensity of soft deposits and calculus

Table 2 presents the mean soft tissue deposit score, and calculus for the total sample (4.1, 0.8) which indicates generally poor oral hygiene among the study population.

The intensity of both conditions in relation to sex and region were shown in table 5. The mean soft deposit and calculus score for urban girls in the total sample was 2.94, 0.63 and for urban boys 4.21, 0.72 which is statistically significant ($P < 0.05$), while that of rural girls and rural boys in the total sample was 4.06, 0.79 < 5.24, 0.94. It is clear that mean scores for rural children was higher than of urban children, for both boys and girls.

Area	Sex	Number	% of free children	Mean soft deposit	Mean calculus	Mean gingivitis
Urban	Boys	263	14.40	4.21	0.72	3.51
	Girls	263	18.63	2.94	0.63	2.61
Rural	Boys	81	3.70	5.24	0.94	4.89
	Girls	81	8.64	4.06	0.79	3.21
Total		688	14.80	4.10	0.81	3.53

Table 5: Periodontal status among 12 year old children according to sex and region.

The intensity of soft deposit and calculus in relation to socio-economic status is show in table 6. The finding shows that intensity of condition is greater in school children from low social class families; the scores were 5.21, 0.95 while the mean scores for high social class families were 1.87, 0.63, respectively which indicates better oral hygiene level.

Socioeconomic Status	Number of children	% of free children	Mean deposit	Mean calculus	Mean gingivitis
Low	153	7.18	5.21	0.95	4.14
Middle	292	19.82	3.65	0.72	3.13
High	81	22.54	1.87	0.36	1.91

Table 6: Periodontal status among 12 year old urban children in Baghdad according to socioeconomic status.

Periodontal treatment needs

Table 7 shows the treatment needs among school children according to sex and region; 14.09% of the total sample were in need of dental health education and only 67.01% of them were in need of both health education, and scaling and polishing, while 18.87% of the total sample needed the same aspect of treatment together with gingivitis treatment..

Rural students showed a higher percentage for gingival treatment than urban students; 32.09% of rural boys were in need of all three aspects of treatment compared to 20.53% of urban boys which indicates more severe cases of gingivitis among them.

18.63% of urban girls needed health education compared to only 8.65 of rural girls who needed the same treatment.

Region	Sex	Number of children	Dental health education		Health education scaling and polishing		Health education scaling and polishing and treatment of gingivitis	
			Number	%	Number	%	Number	%
Urban	Boys	263	38	14.4	171	65.01	54	20.53
	Girls	263	49	18.63	179	68.06	35	13.35
Rural	Boys	81	3	3.7	52	64.19	26	32.09
	Girls	81	7	8.6	59	72.8	15	18.51
total		688	97	14.09	461	67.01	130	18.87

Table 7: Shows the treatment needs among school children according to sex and region.

In both areas and both sexes the majority of school children needed both health education and scaling and polishing: 68.06% of urban girls, 65.01% of urban boys and 72.8% of rural girls and 64.19% of rural boys.

Discussion

The most significant finding of this survey was the gingival inflammation and factors leading to it, such as oral debris and calculus which are widespread in this youngest age group, which concurs with the findings of other investigators [6,7,16].

The prevalence rate of gingivitis in Iraqi school children was found in 83% of the study population, which is remarkably similar to that reported in other counties. For example, in Ethiopia, Olsson [17] found that more than 85% had the condition and in Nigeria a percentage of 58% was reported (Akpata 2004).

However, in New Zealand, the Government Report of Children Health (2011) reported less than 4% of subjects with gingival disease.

The mean score for intense gingivitis was 3.53 which may be described as ranging from simple inflammation to intense gingivitis, with no indication of destructive disease. Unilaterla function was observed among many children due to untreated and painful decayed teeth, giving rise to many cases of severe gingivitis and bad oral hygiene.

Rural students had significantly higher intense gingivitis (3.06) than urban students (2.48) which confirms studies reporting on better periodontal condition in urban as compared with rural population [17-23]. This could be attributed to the better standards of living, educational and social conditions of urban student, which lowers the severity of the disease.

In both urban and rural areas the comparison between prevalence of gingivitis in girls and boys was clear cut, with boys they tending to suffer more with gingivitis than girls. This is in agreement with the general findings of other investigators [1,22,24-27]. The study of the literature on the prevalence of gingivitis between the sexes indicates that the difference may be associated with the age group under consideration, and is often a matter of debate. Some authors, suchas Pari [2] have suggested that earlier puberty in girls causes their earlier gingivitis. Parfitt [28] in a longitudinal study of English children showed that the incidence and severity of gingivitis reaches a maximum at age 13 and ½ in boys and at 11 years in girls. Before the age of 12 years the girls showed higher incidence of gingivitis; at 12 years the position was reversed with boys showing a higher incidence. Other authors, such as Elliman [29] explained the difference in terms of improved oral hygiene; girls became more conscious of their personal hygiene and they started cleaning their teeth more conscientiously.

Concerning the soft deposits and calculus, the present study revealed poor oral hygiene; the mean score for soft deposit and calculus of the total sample was 4.1, 0.8, which suggested that only few carry on with efficient tooth brushing. The data from various other surveys on oral hygiene in youth reveals a higher average score for boys than girls and the present study is in the agreement with these data [22,30-

33]. The difference was apparent in oral cleanliness; a healthier level of oral hygiene as found in girls. The mean score of soft deposit and calculus for girls was 3.5, 0.71, compared to 4.72, 0.84 for boys. Although the reason for the dental cleanliness has not been established in this investigation, it seems likely that the difference between boys and girls was due to girls brushing their teeth more; no doubt for cosmetic reasons.

The difference in social, educational factors and tooth brushing attitude between the urban and rural students can explain the differences in oral hygiene of the students in both areas.

The rural students were found to have a significantly higher mean score of soft deposit and calculus (4.65, 0.87) than urban students (3.58, 0.68) and this in agreement with many other studies [17,34].

Socio-economic conditions have been shown to have a strong influence on gingival and oral health. In the present studies gingivitis was more prevalent among lower socioeconomic children and associated with poor oral hygiene conditions than higher social class, which is probably due to the superior oral cleanliness and more dental consciousness among higher social class parents because of their better living conditions, This finding support that of other studies [1,22,35,36-45].

Treatment need

Since intense gingivitis was found in 83% of the children and since no destructive disease was noted, control of gingival disease supports the use of classroom dental health education and toothbrush instruction, together with professional plaque control (scaling and polishing). Hugoson., *et al.* [7] made the following statement "one of the aim of epidemiological recording of caries and gingivitis/periodontitis is to use his results for planning dental care and the different resources needed for its realization." The present study present demonstrates a moderate prevalence of periodontal diseases which provides some points for the development of broad strategies for the implementation of preventive measures, and emphasizes the fact that the periodontal activities in periodontal care for this youth group should be in health promotion and education, together with a prophylaxis program, leading to the improvement of oral hygiene.

Summary and Conclusion

A dental epidemiological study was conducted to assess the prevalence intensity of periodontal status and the treatment need in young adolescents to provide baseline data for future planning of health services. A stratified random sample was selected; there were a total of 688 school children aged 12 years, from both sexes, social strata and urban-rural locations.

The diagnostic criteria and recording methods were used following the WHO (2013) oral health surveys, basic methods the overall prevalence of gingivitis and dental cleanliness was high. The percentage of school children who showed no sign of soft deposit and / or calculus and/or intense gingivitis was 14.80% compared to 82.63% of children affected.

A significant difference in oral hygiene and gingival health between sexes in both urban and rural was demonstrated. Children from parents of high social classes displayed much better oral hygiene and better gingival health than those from lower social classes. On the basis of the findings, the majority of children needed dental attention and dental health education for practising good oral hygiene which emphasises the need for intensive preventive programs through school dental services to achieve long term good oral health.

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