

Periodontal health and treatment needs of intermediate school children and its relation to educational level of parents

Tarik Y KHAMRICO*
Rayia J AL-NAIMI**
Layla A MAKANI***

ABSTRACT

This study was carried out on (981) intermediate school children aged (13-15) years to determine the influence of parent education on periodontal health status and treatment needs.

The Community Periodontal Index of Treatment Needs (CPITN) was used to assess the periodontal condition and treatment needs. The results showed that the percentage of children with a healthy gingiva was low in respect of the educational level of their parents; periodontal disease was prevalent in (93.2-100%) of the sample.

There was no significant difference in the mean number of healthy sextants between males and females in the different levels of parent education. Also, there was no significant difference in periodontal disease and treatment needs for the total sample in relation to different levels of parent education.

The periodontal treatment needs for the students were massive; (93.2-100%) needed dental health education, while prophylactic scaling and polishing was required in (62.7-84.21%) of the sample.

Key Words: Parent education, treatment needs, periodontal health status.

الخلاصة

أجريت الدراسة على عينة مكونة من (٩٨١) طالب وطالبة تتراوح أعمارهم بين (١٣-١٥) سنة من المدارس الثانوية في مركز مدينة الموصل لمعرفة مدى تأثير المستوى الدراسي العلمي لرب الأسرة على حالة التهاب اللثة والاحتياجات العلاجية لهذه الفئة.

استخدم دليل الاحتياجات العلاجية في مجال أمراض ما حول الأسنان لتقييم حالة التهاب اللثة والاحتياجات العلاجية لها.

أظهرت النتائج أن نسبة ضئيلة جداً من الطلاب لديهم لثة سليمة بغض النظر عن المستوى الدراسي لرب الأسرة وكانت نسبة التهاب اللثة تتراوح بين (٩٣,٢-١٠٠%) للعينة، ولم يكن هناك أي فرق إحصائي بين الإناث والذكور الذين ينتمون لعائلات لدى رب الأسرة مستويات مختلفة من التحصيل الدراسي. أظهرت النتائج أيضاً أن هناك احتياج كبير لعلاج التهاب اللثة لكل الفئات وبدون فارق إحصائي بالنسبة للإناث والذكور الذين ينتمون لعوائل مختلفة، حيث بلغت نسبة الطلاب الذين يحتاجون إلى تشخيص صحي فموي ما بين (٩٣,٢-١٠٠%) بينما كانت نسبة الطلاب الذين يحتاجون إلى التنظيف ما بين (٦٢,٧-٨٤,٢١%).

*Tarik Yousif KHAMRICO; BDS, DDPI (RCS), MSc; Prof.

**Rayia Jasim AL-NAIMI; BDS, MSc; Lecturer.

***Layla Aziz MAKANI; BDS, MSc; Lecturer.

Department of Pedodontics, Orthodontics, and Preventive Dentistry, College of Dentistry, University of Mosul, Mosul, IRAQ.

INTRODUCTION

Periodontal disease is a generalized term for a range of pathological conditions affecting the supporting and investing structure of the teeth⁽¹⁾. Although it is most prevalent in adulthood, a review of the literature clearly indicates that the disease is initiated in childhood^(2, 3) with many factors that will affect its prevalence and severity⁽⁴⁻⁸⁾. One of these factors is socio-economic status of the individual.

According to Beal⁽⁹⁾ two important factors are fundamental in understanding the relationship between social status and health. The first is income, where those in higher social classes in general receive a higher income. The other factor is education, most of those in higher social classes have a college education (Bachelor degree or higher form) at the other end of the scale the majority of subjects in low social classes left full time education at a minimum school leaving age and went straight into a job, and even though social class is a status achieved during the life time of the individual, it also has an ascribed component as a minor takes the social class of his or her father. In fact the whole family is recognized as a unit of social class.

The purpose of the present study was to determine the influence of the different levels of parent education on the gingival health and treatment need of intermediate school children from different areas of Mosul City.

MATERIALS AND METHODS

A random sample of (981) children aged (13-15) years old of both sexes from (13) different intermediate schools in Mosul city were examined (7 schools for boys and 6 schools for girls) for their periodontal status and treatment needs and to determine the influence of educational level of head of household on their periodontal status and treatment needs.

The school children who were examined were selected from schools located in the city center of Mosul. The educational level of their fathers was divided according to the educational level into four major groups: First group included those who had finished primary school, illiterate eradication programmes or was illiterate. The second group included those who had finished intermediate or secondary schools. The third group included individuals that had a Diploma or a Bachelor degree, and the last group included individuals that had a higher degree (higher form of education like M.Sc, Ph.D or equivalents). If the father was deceased, the educational level of head of household was recorded (mother, brother, uncle... etc).

Clinical examination was performed under natural condition and treatment needs were assessed according to the community periodontal index of treatment needs (CPITN). The especially designing WHO periodontal probe was used.

Each sextant was assigned a code number which recorded the condition of the worst affected site in that sextant. The subjects were classified into treatment needs categories according to the highest code number assigned to any of the sextants in particular individual. The pocket depth was not measured because it has been suggested that for children under (13) years of age, only the presence or absence of gingival bleeding and calculus should be recorded due to the presence of false pockets that are associated with the eruption of permanent teeth which will give misleading results⁽⁸⁾.

The statistical analysis of data included the following: Calculation of the mean, standard deviation and percentages and Chi square test was used to determine

significant difference. The difference was considered significant when the probability (p) level was equal to or less than (0.05) ($p < 0.05$).

RESULTS

Distribution of the sample by age, sex and educational level of head of household is shown in table (1). The sample was composed of (981) children distributed into (3) age groups from (13–15) years old. Each age group had the following number of children examined (328), (330) and (323) for age groups (13), (14) and (15) years respectively. According to level of education of parents each subdivision included the following number of children (293), (253), (359) and (76) for illiterate / primary, intermediate / secondary, Diploma / Bachelor degree and M.Sc, Ph.D or equivalents level of education of parents, respectively.

Table (1): Distribution of the sample by age, gender and educational level of head of household

Educational Level of Head of Household	Age 13 Years		Age 14 Years		Age 15 Years		Total
	Male	Female	Male	Female	Male	Female	
Illiterate / Primary	57	51	52	51	42	40	293
Intermediate / Secondary	49	31	48	36	44	45	253
Diploma / Bachelor Degree	63	54	62	50	71	59	359
M.Sc, Ph.D or Equivalents	6	17	19	12	14	8	76
Total	175	153	181	149	171	152	981
	328		330		323		

Table (2) shows us the number and percentage of children distributed according to the highest CPITN by age, sex and educational level of parents. The sample in all (3) age groups and (4) different educational level of parents showed the same characteristic feature of having a very low percentage of healthy gingiva ranging from (0–6.8%). Also the percentage with bleeding as the highest score ranged between (14.3–31.75%) while the percentage of children with calculus as the highest score ranged between (62.7–87.5%); so the children with calculus were found in the majority of the sample regardless of their age and educational level of parents. No significant sex difference was found between males and females in the (3) age groups and in the different educational level.

Table (2): Number and percentage of the children distributed according to the highest CPITN by age, sex and educational level

Age	Educational Level of Head of Household	Males						Females					
		Healthy		Bleeding		Calculus		Healthy		Bleeding		Calculus	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
13 Years	Illiterate/Primary	1	1.75	9	15.8	47	82.45	-	-	19	37.3	32	62.7
	Intermediate/Secondary	-	-	9	18.3	40	81.7	1	3.25	6	19.35	24	77.4
	Diploma/Bachelor Degree	-	-	20	31.75	43	68.25	-	-	16	29.6	38	70.4
	M.Sc, Ph.D or Equivalents	-	-	1	16.7	5	83.3	-	-	5	29.4	12	70.6
14 Years	Illiterate/Primary	-	-	15	28.85	37	71.15	-	-	11	21.6	40	78.4
	Intermediate/Secondary	-	-	9	18.75	39	81.25	-	-	7	19.4	29	80.6
	Diploma/Bachelor Degree	-	-	10	16.13	52	83.87	1	2	9	18	40	80
	M.Sc, Ph.D or Equivalents	-	-	3	15.8	16	84.2	-	-	2	16.7	10	83.3
15 Years	Illiterate/Primary	-	-	7	16.7	35	83.3	-	-	6	15	34	85
	Intermediate/Secondary	1	2.4	6	14.3	37	83.3	2	4.4	12	26.7	31	68.9
	Diploma/Bachelor Degree	2	2.8	11	15.5	58	81.7	4	6.8	12	20.3	43	72.9
	M.Sc, Ph.D or Equivalents	-	-	3	21.4	11	78.6	-	-	1	12.5	7	87.5
13 years old	$\chi^2= 7.78421$		d.f= 9		$(p>0.05)$ N.S								
14 years old	$\chi^2= 2.77129$		d.f= 9		$(p>0.05)$ N.S								
15 years old	$\chi^2= 6.285219$		d.f= 9		$(p>0.05)$ N.S								

The periodontal treatment needs expressed as percentage of children distributed according to type of treatment is shown in table (3). The children that needed no treatment ranged from (0–6.8%) in the (3) age groups and different levels of parent education. Children that needed oral hygiene education were the majority of the sample ranging between (96.75–100%), while those that needed professional treatment (scaling) ranged between (62.7–87.5%) although females with a healthy gingiva that required no treatment had a percentage ranging between (2–6.8%), while males had healthy gingiva at a range of (1.7–2.8%). No significant difference in the periodontal treatment was found between males and females in the (4) levels of parent education for age groups (13), (14) and (15) years, respectively.

Table (3): Periodontal treatment needs expressed as percentage of children distributed according to type of treatment required by age, sex and educational level

Age	Educational Level of Head of Household	Males			Females		
		TN0	TN1	TN2	TN0	TN1	TN2
13 Years	Illiterate/ Primary	1.75	98.25	82.45	-	100	62.70
	Intermediate/ Secondary	-	100	81.70	3.25	96.75	77.40
	Diploma/Bachelor Degree	-	100	68.25	-	100	70.40
	M.Sc, Ph.D or Equivalents	-	100	83.30	-	100	70.60
14 Years	Illiterate / Primary	-	100	71.15	-	100	78.40
	Intermediate/ Secondary	-	100	81.25	-	100	80.60
	Diploma/Bachelor Degree	-	100	83.87	2	98	80.00
	M.Sc, Ph.D or Equivalents	-	100	84.21	-	100	83.30
15 Years	Illiterate / Primary	-	100	83.30	-	100	85.00
	Intermediate/ Secondary	2.4	97.6	83.30	4.4	95.6	68.90
	Diploma/Bachelor Degree	2.8	97.2	81.70	6.8	93.2	72.90
	M.Sc, Ph.D or Equivalents	-	100	78.60	-	100	87.50
13 years old	$\chi^2= 7.31637$	d.f= 9	($p>0.05$) N.S				
14 years old	$\chi^2= 0.448125$	d.f= 9	($p>0.05$) N.S				
15 years old	$\chi^2= 2.2473$	d.f= 9	($p>0.05$) N.S				

The mean number of sextants affected per child according to age, sex and educational level of parents is shown in table (4). The mean number of healthy sextants in females ranged between (0.49–1.93) compared to males that ranged between (0.6–2.5). Bleeding sextants in females ranged between (2.56–3.36) while in males it ranged between (2.17–3.75). Mean number of calculus for females ranged between (1.61–2.20); in males it ranged between (1.33–2.45) in the (4) different levels of education for head of household.

No significant sex difference was found in the mean number of sextants affected in males and females in the (4) levels of parents education in (13), (14) and (15) years, respectively.

Table (5) displays the mean number of sextants affected per child according to sex and educational level of parent. No significant difference was found in the mean number of healthy, bleeding and calculus sextants between males and females in the (3) age groups that belonged to families where the head of household had the (4) different levels of education.

Table (4): Mean number of sextants affected per child according to age, sex and educational level of parents

Age	Educational Level	Males			Females		
		Healthy	Bleeding	Calculus	Healthy	Bleeding	Calculus
13 Years	Illiterate/ Primary	0.62	3.42	1.96	1.44	2.95	1.61
	Intermediate/ Secondary	0.60	3.46	1.94	1.16	2.90	1.94
	Diploma/Bachelor Degree	1.24	3.27	1.49	1.57	3.04	1.39
	M.Sc, Ph.D or Equivalents	2.50	2.17	1.33	1.93	2.45	1.62
14 Years	Illiterate/ Primary	0.82	3.50	1.68	1.30	2.60	2.10
	Intermediate/ Secondary	0.80	3.12	2.08	1.33	2.56	2.11
	Diploma/Bachelor Degree	0.98	2.89	2.13	1.65	2.66	1.69
	M.Sc, Ph.D or Equivalents	1.41	2.80	1.79	1.92	2.58	1.50
15 Years	Illiterate/ Primary	1.20	2.35	2.45	0.49	3.31	2.20
	Intermediate/ Secondary	1.95	2.70	1.35	1.86	3.24	1.90
	Diploma/Bachelor Degree	1.96	2.40	1.64	1.25	2.86	1.89
	M.Sc, Ph.D or Equivalents	0.75	3.75	1.50	0.71	3.36	1.93

Educational level versus sex in:

13 years old	$\chi^2 = 0.7842347$	d.f= 15	($p > 0.05$) N.S
14 years old	$\chi^2 = 1.734078$	d.f= 15	($p > 0.05$) N.S
15 years old	$\chi^2 = 1.3343$	d.f= 15	($p > 0.05$) N.S

Table (5): Mean number of sextants affected per child according to sex and educational level of parents

Educational Level	Males			Females		
	Healthy	Bleeding	Calculus	Healthy	Bleeding	Calculus
Illiterate/ Primary	0.64	3.41	1.95	1.32	2.63	2.05
Intermediate/ Secondary	0.74	3.37	1.89	1.46	2.72	1.82
Diploma/Bachelor Degree	1.16	3.00	1.84	1.73	2.70	1.57
M.Sc, Ph.D or Equivalents	1.55	2.77	1.68	1.55	2.91	1.54

Educational level versus sex for total sample: $\chi^2 = 0.8051435$ d.f= 15 ($p > 0.05$) N.S

Although the mean number of healthy sextants in male children whose parents had a higher form of education (M.Sc, Ph.D) was higher (1.55) than males whose parents had a low education form (illiterates or primary schooling) (0.64); also mean number of healthy sextants for females whose parents had a higher form of education (1.54) compared to females whose parents had a low educational form (1.32). No significant difference in the mean number of sextants affected for both males and females whose parents had a low or high form of education.

Table (6) shows the mean number of sextants for the total sample according to different educational level of parents. Although the sample exhibited a higher mean of healthy sextant for children whose parents had a Diploma / Bachelor degree, M.Sc, or Ph.D which was (1.45), (1.55) respectively compared to children whose parents were illiterate or had a primary schooling. Also mean number of bleeding sextants for children belonging to parents having a higher form of education was slightly less than that of children whose parents had a low form of educational level (2.84), (3.02) respectively. Also mean number of sextants with calculus was less in children belonging to families where head of household had a higher form of education compared to children whose parents had a low educational level (1.61), (2) respectively. There was no significant difference in the mean number of sextants for the total sample regardless of educational level of parents.

Table (6): Mean number of sextants for the total sample according to different educational levels

Educational Level	Healthy	Bleeding	Calculus
Illiterate/ Primary	0.98	3.02	2.00
Intermediate/ Secondary	1.10	3.05	1.85
Diploma/Bachelor Degree	1.45	2.85	1.70
M.Sc, Ph.D or Equivalents	1.55	2.84	1.61

Educational level versus sex for total sample:

$\chi^2 = 0.7847975$ d.f= 6 ($p > 0.05$) N.S

DISCUSSION

The Community Periodontal Index of Treatment Needs was used to assess the periodontal status. This index, since it was adopted by the WHO and FDI, has been used in many studies as a basic epidemiological tool for the assessment of the nature and the magnitude of the need for periodontal treatment and as an aid for planning dental services.

The results of this study has shown that the percentage of children with a healthy gingiva was very low irrespective of the education of their parents and the (3) different age groups in the study, as it ranged between (0–6.8%). This means that the prevalence of periodontal disease is ranging between (93.2–100%). This is more than that reported in Baghdad ⁽⁶⁾ but it is comparable with that of other studies ^(5, 13–16). Also, children with calculus made up the major part of the total sample irrespective of

the educational level, sex and age groups as it ranged between (68.25–87.5). This is in agreement with other studies^(11,13,17).

Periodontal treatment needs for the sample were massive for all educational levels, age groups and for both sexes. The children who belonged to parent having a low form of education (illiterate / primary) required dental health education at a percentage of (98.25–100%), while children belonging to families where head of household had a higher educational form (M.Sc, Ph.D) required a percentage of (100%) health education, irrespective the age and sex. Professional treatment of children was required in (62.7–85%) of the families with a low form of education, while children belonging to families where the parent had a higher form of education were ranging between (80.6–87.5%). There was no significant difference in the periodontal treatment in the different levels of parent education in the (3) age groups.

The mean number of healthy sextant was low irrespective of the educational level of parent and sex in the (3) age groups as it ranged between (0.6–2.5). This figure is less than that reported in a study which suggested that the finding of three or more healthy sextants in a full dentition to be regarded as a criteria of an "acceptable" gingival health⁽¹²⁾. The mean number of sextants with bleeding and calculus was almost the same in all the different educational levels of parents and in both sexes ranging between (2.17–3.75), (1.39–2.45), respectively.

Although the mean number of healthy sextants in male children belonging to parents of low form of education compared to children belonging to parents of higher forms (1.32), (1.54), respectively. No significance in the mean number of healthy sextants was found between the (4) different educational level of parent between males and females. This is in agreement with other studies^(13, 18, 19).

For the total sample, although the mean number of healthy sextants for children belonging to families where the head of household had a low form of education (0.98) compared to children belonging to families where head of household had a higher form of education (1.55) with no significant difference between them. This is in agreement with the results of Mohammed⁽²⁰⁾, El-Samarri⁽²¹⁾ and Mutar⁽²²⁾ who found that improvement of parent knowledge through education has no effect on improving behaviour of the child. This confirms that people with good dental knowledge do not necessarily apply this knowledge in their oral hygiene behaviour even to their children.

The findings of this study is in contrast to the results obtained from other studies that found a significant correlation between the increase in the level of parent education and the improvement in the periodontal condition of children^(16, 23–26).

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