

Dental caries experience of intermediate school children in relation to educational level of their parents in Mosul City

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ABSTRACT

The aim of the study was to determine the influence of educational level of parents on dental caries experience and treatment needs of intermediate school children aged 13–15 years in the center of Mosul City.

A sample of 981 children were examined according to WHO guidelines using DMFT index. Results showed that there was a statistically significant age difference in dental caries, while no significant results were obtained regarding sex and educational level of head of household. The treatment needs of the children were massive with no significant difference in the type of treatment required according to age, sex and educational level of the children's parent.

Key Words: Dental caries, educational level, intermediate schools.

الخلاصة

الهدف من الدراسة هو لمعرفة مدى تأثير التحصيل الدراسي لرب الأسرة على التسوس والحاجات العلاجية لمجموعة من أطفال المدارس المتوسطة والتي تتراوح أعمارهم ما بين ١٣-١٥ سنة في وسط مدينة الموصل. كانت العينة مكونة من ٩٨١ طفل وقد تم فحصهم حسب توصيات منظمة الصحة العالمية. أظهرت النتائج أن التسوس يزداد بازدياد العمر بفرق معنوي إحصائي ولكن لم يكن هناك أي فرق إحصائي بالنسبة لعلاقة التسوس مع الجنس بالإضافة إلى أن المستوى الدراسي لرب الأسرة لم يكن له أي علاقة مع كمية التسوس عند الأطفال. كذلك الحال بالنسبة للحاجات العلاجية حيث كانت كثيرة ولم يكن هناك أي فرق إحصائي للحاجات العلاجية للأطفال بالنسبة لمختلف الأعمار والأجناس والمستوى العلمي لرب الأسرة.

INTRODUCTION

During the last few decades, dental decay has shown distinctive trends that seem to have become more manifested as time passes, while appearing altogether or increasing as a public health problem in developing countries.^(1, 2) Caries experience in developed nations first increased and then decreased.⁽³⁻⁵⁾

Dental caries' multifactorial origin makes it difficult to accurately establish the relative contribution of specific factors to higher or lower levels of disease.⁽⁶⁾ One of the important factors which affect the prevalence and severity of dental caries is

the social status. In western societies two very important factors are fundamental in understanding the relationship between social status and health: The first is income, where those in the higher social classes in general receive a higher income. The other factor is education as most of those in higher social classes have a college (Bachelors degree or higher forms) 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 which is achieved during the life time of

an 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.⁽⁷⁾

According to Kinnby *et al.*⁽⁸⁾ parents of healthy children had a statistically significant higher level of education than parents of diseased children. Also Grocholewicz⁽⁹⁾ noticed that the level of parent education and their socioeconomic status had an influence of building up good oral hygiene habits and on the state of caries among the children examined.

The aim of the present study was to determine the influence of parent education on dental caries experience and treatment needs on a group of intermediate school children in Mosul City.

MATERIALS AND METHODS

A random sample of 981 child aged 13–15 years old of both sexes from 13 different intermediate schools in Mosul City were examined (7 schools for boys and 6 for girls) for their dental caries experience and treatment needs.

The educational level of their parents (head of household) was classified according to a modification of Slade *et al.*⁽¹⁰⁾ into four major groups: First group included those who had finished primary schools, illiterate eradication programmes or were illiterate; second group included those who had finished intermediate or secondary schools; the third group included individuals that had a Diploma or

Bachelors degree; the last group included individuals that had a higher form of education like MSc, PhD or equivalents.

Examination of the teeth was performed according to the basic method of the oral health survey of WHO.⁽¹¹⁾ Diagnosis of dental caries was performed using plane mouth mirrors and sickle shaped explorers; recording of dental caries was performed using DMFT index.

The statistical analysis of data included the following:

- ① Calculation of statistical parameters: The mean, standard deviation and percentage.
- ② Analysis of data by using F test to determine significant differences between males and females, different age groups and educational levels of head of household.

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, gender and educational level of parents is shown in Table (1). The sample was composed of 981 children, distributed among 3 age groups 13, 14 and 15 years (328, 330 and 323 children for each group) which was then subdivided according to educational level of head of household into four divisions.

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

Educational Level of Head of Household	13 Years		14 Years		15 Years		Total
	Males	Females	Males	Females	Males	Females	
Illiterate / Primary	57	51	52	51	42	40	293
Intermediate / Secondary	49	31	48	36	44	45	253
Diploma / Bachelors	63	54	62	50	71	59	359
MSc, PhD or Equivalent	6	17	19	12	14	8	76
Total	175	153	181	149	171	152	981
	328		330		323		

Table (2) displays the mean DMFT for the sample. The study showed that the mean DMFT for the total sample was increased with increasing age with a statistically significant age difference. Al-

though females showed a higher DMFT value compared to males, there was no statistically significant difference between them.

Table (2): Mean DMFT for total sample by age, sex and educational level of parents

Age Group	Educational Level of Parents	Males		Females	
		Mean DMF	±SD	Mean DMFT	±SD
13 Years	Illiterate / Primary	2.122	1.793	3.372	2.513
	Intermediate / Secondary	2.163	2.741	3.548	2.718
	Diploma / Bachelors	2.650	1.637	2.98	2.310
	MSc, PhD or Equivalent	3.166	2.639	2.117	1.833
	Total	2.43	2.01	3.08	2.41
14 Years	Illiterate / Primary	3.25	2.432	3.607	2.807
	Intermediate / Secondary	3.354	2.572	3.861	3.043
	Diploma / Bachelors	2.709	2.153	3.8	2.885
	MSc, PhD or Equivalent	2.315	2.646	4.307	2.323
	Total	2.98	2.410	3.77	2.84
15 Years	Illiterate / Primary	3.642	2.844	3.925	2.595
	Intermediate / Secondary	4.159	3.443	4.577	2.518
	Diploma / Bachelors	4.394	3.365	4.610	2.722
	MSc, PhD or Equivalent	4.714	3.517	4.5	2.329
	Total	4.18	3.257	4.43	2.59

Age: F value = 16.2, d.f = 2.21, $p = 0.000$: Significant.

Sex: F value = 2.78, d.f = 1.22, $p = 0.110$: Not significant.

Educational level of parents: F value = 0.12, d.f = 3.20, $p = 0.0950$: Not significant.

SD: Standard deviation.

Results also showed no significant difference in mean DMFT values for children belonging to families where the head of the household had different educational levels (i.e., no significant difference between children whose parents had high or low form of education).

The treatment needs of the children were massive as shown in Table (3). The total sample shared a characteristic feature of needing one surface restoration as being the most prevalent treatment, followed by

2 or more surface restoration, then extraction and pulp care alternatively and lastly crown construction.

Results showed no significant difference in the type of treatment required in the 3 age groups. Also there was no significant difference in type of treatment required between males and females. There was no significant difference in the treatment needs required for the children according to the educational level of head of household.

Table (3): The percentage of the treatment needs for the sample by age, sex and educational level of parents

Age Group	Educational Level of Parents	Males					Females				
		*	**	***	****	*****	*	**	***	****	*****
13 Years	Illiterate / Primary	74.4	18.6	0	3.5	3.5	68.6	25	0	1.8	4.6
	Intermediate / Secondary	75.5	16.3	2	2	4.2	68	25	1	3	3
	Diploma / Bachelors	68	19.6	0	7.2	5.2	66.86	27.2	0	2.64	3.3
	MSc, PhD or Equivalent	66.7	33.3	0	0	0	76.5	20.6	0	2.9	0
14 Years	Illiterate / Primary	73.7	22.7	0	1.8	1.8	58.7	33.7	0	5.3	2.3
	Intermediate / Secondary	71.3	22.9	0	2.9	2.9	63.33	30	0	5.83	0.84
	Diploma / Bachelors	63.6	29.9	0.7	3.9	1.9	70	25	0.9	1.16	2.9
	MSc, PhD or Equivalent	45	52.5	0	2.5	0	62.5	37.5	0	0	0
15 Years	Illiterate / Primary	79.5	18.1	0	0.8	1.6	67.6	23.4	0	5.5	3.5
	Intermediate / Secondary	62.3	29.6	0	3.7	4.4	73.7	22	0	3.8	0.5
	Diploma / Bachelors	72.61	23.8	0.6	1.79	1.20	68.3	26.4	0	3.3	2
	MSc, PhD or Equivalent	64.64	27	0	4.18	4.18	71.9	21.9	0	6.2	0

* One surface filling.

** Two or more surface filling.

*** Crown.

**** Pulp care.

***** Extraction.

Age: F value = 0.021, d.f = 2.117, $p = 0.984$: Not significant.

Sex: F value = 0.03, d.f = 3.116, $p = 0.900$: Not significant.

Educational level of parents: F value = 0.02, d.f = 3.116, $p = 0.0997$: Not significant.

DISCUSSION

Results of this study have shown that dental caries represented by mean DMFT was increased with increasing age with a statistically significant age difference. This may be attributed to the irreversible and accumulative nature of the disease. This is in agreement with other studies.⁽¹²⁻¹⁵⁾ Although mean DMFT in females exhibited higher values compared to males, no significant difference in dental experience was found between them. This is in agreement with other studies.^(13, 16, 17)

Results also showed that although the mean DMFT values for children belonging to parents having different educational level were nearly within the same range, children belonging to parents having a higher form of education (Diploma, Bachelors degree or higher forms) had a higher DMFT value than other children within the same age group belonging to parents with a low educational level, but

no statistically significant difference in dental caries experience was found in children belonging to parents of different educational level. This is in agreement with the results of a study carried out in Baghdad⁽¹⁸⁾ but it contradict the results of other studies which found that children of parents or individuals having a higher form of education have a reduced caries experience compared to others with low educational level.^(19, 20)

The treatment needs of the children were massive irrespective of the educational level of the head of household. The total sample shared a characteristic feature of needing one surface restoration as the most prevalent treatment, followed by two or more surface restorations, pulp care and extraction alternatively and finally crown construction. The need for one surface filling as being the most prevalent is in agreement with the result of other studies.^(13, 21) The massive treat-

ments required are in contrast to the finding of another study⁽²²⁾ that found only a very small proportion of children needed dental treatment which may be attributed to implementation of water fluoridation.

The high need for restorative treatment reflects a limited dental awareness irrespective of the educational level of parents.

Results also revealed that there was no statistically significant age difference in the treatment needs of the total sample in the 3 age groups. Also no significant difference in treatment was found between males and females and also the different educational level of head of household did not have any effect on the treatment needs of the children.

The study revealed that there is no relationship between level of education of head of household and dental caries experience and treatment needs of the children.

According to many studies people with good dental knowledge do not necessarily apply this knowledge in their oral hygiene behaviour even to their children.⁽²³⁻²⁵⁾ Dental health knowledge is necessary but not sufficient to motivate indi-

viduals to engage into optimal preventive dental practices.

The use of restorative dentistry alone has proved of being relatively unsuccessful in reducing the prevalence of dental disease. Another study stated that the cariogenic challenge and harmful behaviour in certain children may be so extreme that they can overwhelm even extraordinary preventive effort.⁽²⁷⁾ The children are in need of a dental preventive and curative programme. The priority should be given to primary preventive programmes that includes instructing the children to carry out thorough and regular tooth brushing and using fluoride dentifrices, use of systemic or topical fluoride such as tablets or mouth rinses, fissure sealant and above all health education programmes to change their food eating habits (sugar consumption). This can be achieved in school setting programmes, where it is possible to reach a large number of school children irrespective of the educational level of their parents with well planned preventive measures in addition to regular attendance to the dental clinic to carry out preventive and restorative treatment.

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