

## THE PREVALENCE OF DENTAL CARIES AMONG 6 -12 YEARS-OLD SCHOOL CHILDREN IN SHARIA CAMP

MIRZA MURAD KHUDEDA, BDS, MSC PREVENTION\*  
ANEES MAHMOOD MUDHIR, BDS, MSC PHD ORTHODONTIC\*\*

*Submitted 5/5/2017; accepted 15/3/2018*

### ABSTRACT

**Background:** Risk of dental caries is high among the IDP children. Therefore for control and prevention of this problem we need data provides key information. There is no national oral survey has been carried out to determine the prevalence of oral health problems in this group people (Singar people).

**Subject and Methods:** The aim of this study was to estimate the prevalence and severity of dental caries in 6-12 year old children in Sharia camp of refugees from Singar.

**Material and methods:** The cross section study was carried out in elementary school children, which were randomly selected from Sharia camp of IDP Singar people in Kurdistan of Iraq.

**Results:** Results showed the mean dmft and DMFT scores were (2.45 – 2.606) and (0.927±1.583), respectively. Also, 23.4% of the students were caries-free.

**Conclusions:** It was concluded that the present study findings for dmft and DMFT scores in 6-12 year old elementary school children are higher than global standards according to the World Health Organization (WHO).

**Duhok Med J 2018; 12 (1): 55-62**

**Keywords:** Dental caries, prevalence , DMFT, DMFS, dmft, dmfs

Dental caries is the most prevalent chronic disease among children in the global scenario. It is a cumulative and progressive disease causing pain, infection and possible disfigurement particularly in children. There are practically no geographic areas in the world whose inhabitants don't exhibit evidence of dental caries. Early recognition of the disease is important. This is needed in order to prevent the disease so as to make oral health services more relevant in the health<sup>1</sup>. The process of developing a health system requires mechanisms for collecting and analyzing health information. The determination of

need for dental care programs requires a systematic flow of information between the community and the dental profession. With a view to the fact that dental caries causes significant economic loss, it can have been heavy expenses of dental treatment. The most important way to reduce this loss is attention to prevention measures. Dental decay experience is expressed as a dmft or DMFT score. dmft index describes the number of decayed, missing and filled temporary teeth. DMFT describes the number of permanent decayed, missing and filled teeth. The dmft score describes decay experience in deciduous teeth, while the DMFT score

\* \*Assistant lecturer, Department of Pedoortho Prevention (POP), College of Dentistry, Kurdistan Region, Iraq.

\*\* lecturer, Department of Pedoortho Prevention (POP), College of Dentistry, Kurdistan Region, Iraq.

*Correspondence author to: Mirza Murad Khudeda, Mirzamura2@yahoo.com, Mobil +9647504508532*

describes decay experience in permanent teeth<sup>2</sup>. The basic criteria for evaluation of oral and dental health are DMFT and dmft. DMFT and dmft indices provide a wide range of information about oral public health.

Epidemiological studies have been conducted in Iraq concerning dental caries in different age groups and in different Iraqi cities<sup>3,4</sup>. All these indicated a high caries-experience and considered it the primary oral health problems in our country. Most of Iraqi studies though were designed to explore caries-experience of subjects in urban areas only<sup>3,5</sup>. Only a few studies involved both areas to compare severity and distribution of the disease<sup>6,7,8</sup>.

The objectives of this study are:

- 1- To determine the prevalence and severity of Dental caries and dental treatment needs among 6-12 years old elementary school children in Sharia camp of IDP Singar people.
- 2- To study the relation of gender with prevalence and severity dental caries.

### MATERIAL AND METHODS

This cross section study was carried out about prevalence of dmft, dmfs, DMFT and DMFS on 757, 6-12 year old children, which were randomly selected in Sharia camp of IDPSingar people of Kurdistan Iraq in 2015. The sample is chosen from camp randomly. A multi-stage sampling technique was used. Camp and children were chosen according to random table from Singar people in the Duhok IDP camps. The sample was composed of 757 children taken from this age group (6-12-years old). The examination was performed by stage 4th and 5th students of dentistry school in Duhok University (70

students), the students were divided in 23 groups 3 students in each group only one group 4 students using No. 4 disposable mouth mirror, sterilized instruments, disinfectant solution, disposable gloves, mask and probe

Oral examination: The subjects were examined while seated in a earth in a suitable room, with the examiner standing behind or in front of the children. Examination was under natural day light.

Forms used for recording the general information and the results of survey are described in the oral health surveys basic methods of the WHO for the year 1997<sup>9</sup>.

Examination and oral health assessments were performed according to the basic methods of the oral health survey of the WHO for the year 1987<sup>9</sup>.

Dental Caries: Decayed (D d), missing (M m), filled teeth (F f) (DMFT/dmft).

The clinical examination for dental caries was conducted using a plane mouth mirrors and Sickle shaped caries probes<sup>10</sup>.

Data was analyzed using SPSS software, the chi-square test and analysis of variance (ANOVA).

### RESULTS

**Table 1**, showed that in this study total children been studied, the gender distribution was 54.3% males and 45.7% females.

**Table1: Frequency Distribution of Students According to the Sex**

	Frequency	Percent
<b>Male</b>	<b>411</b>	<b>54.3</b>
<b>Female</b>	<b>346</b>	<b>45.7</b>
<b>Total</b>	<b>757</b>	<b>100</b>

Caries free (Table 2) showed that (23.3%) of the total sample was caries-free. While (76.7%) of total sample was caries.

**Table 2: Caries Free Students**

	Frequency	Percent
Students with no caries	177	23.3
Students with caries	580	76.7
<b>Total</b>	<b>757</b>	<b>100</b>

**Table 3**, there was no statistically significant difference in caries free between males student (24.3%), and females student (22.3%)  $p > 0.501$ .

**Table 3: Study Sample Cross Tabulated by Caries and Gender**

Sex	Caries free		Total	P value
	No caries	caries		
Male	100	311	411	0.501
count %	24.3%	75.7%	100%	
Female	77	269	346	
count %	22.3%	77.7%	100%	
<b>Total</b>	<b>177</b>	<b>580</b>	<b>757</b>	
count %	23.3%	76.7	100%	

**Dental caries prevalence**

**Table 4**, shows the mean and standard deviation of dmfs and dmft values in this study. Mean and standard deviation of ds for male, female and total with no significant difference between male and female. Mean and standard deviation of dt for male, female and total with no significant difference between male and female. Mean and standard deviation of fs for male, female and total with no significant difference between male and female. Mean and standard deviation of ms for male, female and total with no significant difference between male and female. Mean and standard deviation of mt

for male, female and total with no significant difference between male and female. Mean and standard deviation of dmfs for male, female and total with no significant difference between male and female. Mean and standard deviation of dmft was for male, female and total with no significant difference between male and female.

**Table 4: Frequency distribution of students according to dmft and dmfs**

	Sex	Mean	SD	P
Ds	Male	411	4.270	0.868
	Female	346	4.347	
	Total	757	4.31	
Dt	Male	411	2.212	0.093
	Female	346	2.526	
	Total	757	2.36	
Fs	Male	411	0.024	0.952
	Female	346	0.023	
	Total	757	0.02	
Ft	Male	411	0.012	0.829
	Female	346	0.014	
	Total	757	0.01	
Ms	Male	411	0.316	0.119
	Female	346	0.517	
	Total	757	0.41	
Mt	Male	411	0.063	0.115
	Female	346	0.104	
	Total	757	0.08	
Dmfs	Male	411	4.611	0.569
	Female	346	4.887	
	Total	757	4.737	
Dmft	Male	411	2.287	0.060
	Female	346	2.645	
	Total	757	2.45	

**Table 5**, shows the mean and standard deviation of DMFT value for total, for males and for females with no significant differences between females and males. DMFS DMFT value for total, for males and for females with no significant differences between females and males. DS DMFT value for total, for males and for females with no significant differences

## THE PREVALENCE OF DENTAL CARIES AMONG 6 -12 YEARS-OLD SCHOOL

between females and males. DT DMFT value for total, for males and for females with no significant differences between females and males. MSDMFT value for total, for males and for females with no significant differences between females and males. MT DMFT value for total, for males and for females with no significant differences between females and males. FS DMFT value for total, for males and for females with no significant differences between females and males. FT DMFT value for total, for males and for females with no significant differences between females and males.

**Table 5: Frequency distribution of students according to DMFT and DMFS**

	Sex	No	Mean	SD	P
DS	Male	411	1.355	2.576	0.668
	Female	346	1.280	2.155	
	Total	757	1.32	2.391	
DT	Male	411	0.925	1.584	0.721
	Female	346	0.965	1.532	
	Total	757	0.94	1.56	
FS	Male	411	0.0	0.0	0.75
	Female	346	0.023	0.263	
	Total	757	0.01	0.178	
FT	Male	411	0.0	0.0	0.75
	Female	346	0.012	0.131	
	Total	757	0.01	0.09	
MS	Male	411	0.010	0.197	0.781
	Female	346	0.014	0.269	
	Total	757	0.01	0.233	
MT	Male	411	0.02	0.49	0.903
	Female	346	0.03	0.54	
	Total	757	0.025	0.51	
DMFS	Male	411	1.365	2.578	0.569
	Female	346	1.318	2.222	
	Total	757	1.343	2.42	
DMFT	Male	411	0.927	1.583	0.644
	Female	346	0.980	1.542	
	Total	757	0.951	1.56	

### DISCUSSION

This study is a cross-sectional study and it is representative for 6-12 years old primary school children in Sharia camp of IDP Singar people. In Duhok governorate.

Dental caries is the most prevalent chronic disease among children globally. There are practically no geographic areas in the world whose inhabitants don't exhibit some evidence of dental caries. Early recognition of the disease is of vital importance. This is needed in order to prevent the disease and pain so as to make oral health services more relevant in the health. Prevalence of dental caries has an increasing trend among school going children<sup>1</sup>. According to present study, the average reported dmft and DMFT for 6-12 years old students is 2.45 and 0.951, respectively and it is less than value suggested by WHO references for the year 2000 (FDI, 1982; WHO, 2006a)<sup>11</sup>

The percentage of caries free in this study is higher than that reported in Baghdad<sup>8</sup>, Portugal<sup>12</sup> in India<sup>13</sup>), while it is lower than in Jeddah, Saudi Arabia<sup>14</sup>, in Irbid City (Jordan)<sup>15</sup>, in a rural of Uganda<sup>16</sup> and in Nigerian 2006<sup>17</sup>).

In this study the percentage of caries free is near the percentage of caries free other studies conducted by Mirza Murad in Dohuk<sup>18</sup>. Although dental care in Sinjar is limited in comparison with the Duhok and level of socioeconomic is lower, but the caries free is at same level that main the type of diet and water is effect in prevalence of dental caries.

According to gender variation, the prevalence of caries free children was slightly higher in males than females with no significant differences between them; this finding is not accordance with other

studies conducted in Iraq dohuk<sup>18</sup> in Baghdad<sup>5,7</sup>.

The goal of WHO/FDI for the year 2000 is that (50%) of 12 years of old children will be caries free. The result of this study regarding 6-12 year old children is much lower than this goal.

Caries experience represented by the means dmft/dmfs for 6-12- years old children it was lower than that reported in other studies in Irbid in Jordan<sup>15</sup>, while higher than others in the Republic of Niger<sup>17</sup> and Baghdad.

The caries experience showed in tables 5, represented by the mean DMFT/DMFS for 12-years old children was, (DMFT for Iraq was 4.0, 1.1, 1.6, for years 1979, 1990 and 1995) respectively, it was lower than other studies in Ninevah<sup>8</sup> and in Kerala, India<sup>13</sup>. On the other hand, it was higher than other studies in Irbid in Jordan<sup>15</sup> and Nigerian<sup>17</sup>. Concerning gender variation, The results shows DMFT/dmft value for males was (2.11±0.07, 0.94±0.06) while for female was (2.29±0.08, 0.69±0.05), no significant differences in caries experience in primary and permanent dentition were observed between both genders, this was in agreement with other studies conducted in Iraq<sup>6,7,8</sup>.

The present study gives an idea about restorative dentistry required for 6-12-years old children. This study showed in tables (4,5) that the most children needs restorative dentistry. Dental care service is very limited.

## REFERENCES

1. Kalra, S. Dental caries. <http://www.whereincity.com/medical/articles/129>, 2005. caries.

2. AIHW. Dental health of school children. Australia's Health 2000 The 7th Biennial Health Report of the Australian Institute of Health and Welfare (AIHW). Canberra, 2000.
3. Salbi Z.D. A comparison of oral health status among 13-14 year old school students from two distinct social status areas in the city of Baghdad. M.Sc. thesis, University of Baghdad College of Dentistry (1999).
4. Al-Azawi, L.A.B. Oral health status and treatment needs among Iraqi five-year's old kindergarten children and fifteen-years old students (A national Survey) Ph. D. Thesis, Baghdad University, Dentistry College (2000).
5. Ali D.N. Oral health status and treatment needs among 12 year old school children in urban and rural areas of Baghdad, Iraq. M. Sc. Thesis, Baghdad University, Dentistry College (2001).
6. Salman FD. Prevalence of dental caries among primary school children age 6-12-year-old in Mosul city center Nineva. M.Sc thesis submitted to the Mosul University, College of Dentistry (1998).
7. AL-Sayyab M.A. Oral health status among 15 year old school children in the Central Region of Iraq. M.Sc. theses submitted to the University of Baghdad, college of Dentistry (1989).
8. AL-Naimi R.J. Dental caries experience of rural and urban

- school children in Ninevah province. AL-Rafidain dental journal,(2001), 1: 18-24.
9. WHO the basic methods of the oral health survey of the WHO for the year 1987.
  10. WHO Oral health surveys. Basic methods. 4th Ed. World Health Organization, Geneva 1997.
  11. WHO. Caries prevalence: DMFT and DMFS. WHO Oral Health Country/Area Profile Programme, WHO Head Quarters Geneva, Oral Health Programme (NPH), WHO Collaborating Center, Malmo University, Sweden, 2006.
  12. Almeida C.M, Petersen P.E, Andre S.J, Toscano A. Changing oral health status of 6 and 12 years old school children in Portugal. Comm. Dent. Health, (2003), 20: 211 – 216.
  13. David, N. J, Wang, A. N, Åstrom, S. Kuriakose. Dental caries and associated factors in 12-year-old schoolchildren in Thiruvananthapuram, Kerala, India. International Journal of Paediatric Dentistry (2005), 15 (6), 420–428.
  14. Gandeh M.B.S, Milaat W.A. Dental caries among schoolchildren: report of a health education campaign inJeddah, Saudi Arabia; Eastern Mediterranean Health Journal, volume (2000); 6 (2/3): 369-401.
  15. Al-Khaza'ali Adnan Mohammed Ali. Oral Health Status and Treatment Needs among (6- and 12- ) Years Old School Children in IrbidCity (Jordan)(2004); a Thesis submitted to the University of Baghdad College of Dentistry.
  16. Nalweyiso N, Busingye J, Whilworth J, Robinson PG. Dental treatment needs of children in a rural subcounty of Uganda International Journal of Paediatric Dentistry,(2004); 14 (1), 27–33. (Abstract).
  17. Adekoya CA, NasirWO, OginniAO, TaiwoM. Dental caries in 12-year-old suburban Nigerian school children. Afr Health Sci. September.(2006); 6(3): 145–150.
  18. Mirza Murad Khudeda. Oral Health Status and Treatment Need Among 12 Years- Old School Students in Duhok Governorate. 2007; A Thesis submitted to medical Hawler university.

## پوخته

## به لافبونا كرمیبونا ددانا ل زاروكین 6-12 سالی ل قوتابخانین كه مپا شاریا

**پیشه کی:** ریژهیا كرمیبونا ددانا ل جه م زاروكا یا بلندای . و یه فوره مه هندهك پیژانین و داتا هه بن ل سه ر كرمیبونا ددانا یین زاروكین كه مپا دا بشیین بروگرامین كونجاو بو پاراستن و چاره سه ریا فان ئاریشا داریزین. هیج فه كولین ل سه ر ئاریشین ساخله مپا ده ف و ددانا و بتایبه ت كرمیبونا ددانا لقی ده قهری به ری نهو نه هاتینه كرن

**ئارمانج:** ئارمانج ژقی فه كولینی كومكرنا پیژانینا ل سه ر ئاریشین ساخله مپا ده ف و ددانا و بتایبه ت كرمیبونا ددانا یین زاروكین (6-12 سالی یین ئاوه ریین شنكالی ل كه مپا شاریا.

**ریكین فه كولینی:** ئه ژ فه كولینا هاتیه ئه نجامدان لسالا 2015 ل سه ر زاروكین ته مه ن 6-12 ل قوتابخانه یین سه رایه تی ب شیوه کی رهنملی ل ئاوه ریین شنكالی ل كه مپا شاریا ل پرزكه ها دهوكی.

**ئه نجام:** ئه نجام د فی فه كولینیدا دیار بو كو ریزا كرمیبونا ددانا (583.1±927.0) (45.2±606.2) dmft, DMFT ل دیف ئیک ئو ریزا زاروكین نه كرمیبونا ددانا 23%

**دهرئه نجام** دهر ئه نجامین قیقه كولینی ریژهیا كرمیبونا ددانا لجه م زاروكا یا بلندترا ژ ستاندردی جیهانی ئه وی ژ لای ریكخراوا ساخلمیا جیهانی هاتیه دیاركرن.

## الخلاصة

### انتشار نسبة التسوس بين اطفال النازحين التي تتراوح أعمارهم 6-12 سنة في مخيم شاريا

**الخلفية والأهداف:** انتشار تسوس الأسنان خاصة عند للأطفال عالي لذلك للسيطرة على هذه المشاكل يتطلب منا أن يكون لدينا الإحصائيات تكون مفتاح المعلومات عن هذه المشاكل ،ولاختيار برنامج وقائية والعلاجية في تسوس الأسنان. لا يوجد لدينا إحصائيات واضحة عن مدى انتشار أمراض الفم وخاصة تسوس الأسنان في هذه المنطقة (منطقة سنجان). الهدف من هذا البحث لتقدير مدى انتشار مرض تسوس الأسنان بين الأطفال عمر ستة 6- 12 سنة في كمب شاريا للمهاجرين من أهل سنجان.

**طرق البحث:** اجرية هذا البحث بتاريخ 2015 على 740 طالب في المرحلة الابتدائية بعمر 6-12 في مخيم شاريا للملاجئي شنكال حيث تم اختيارهم كعينة عشوائية.

**النتائج:** اظهرت النتائج ان نسبة انتشار تسوس الاسنان بمؤشر (583.1±927.0) dmft,DMFT(45.2±606.2) بالتسلسل ونسبه الاطفال غير المصابين بتسوس الاسنان هي 23%.

**الاستنتاجات:** استنتج من هذا البحث ان نسبة انتشار تسوس الاسنان عند الاطفال عمر 6-12 سنة في المدارس الابتدائية اعلى من المعيار العالمي الصادر عن منظمة الصحة العالمية.