

# Dental Caries and Dental Treatment Needs among a Group of 6 years Old Iraqi School Children

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**Abstract:** *The needs for database in the dental health science is mandatory to have a good idea for good plan, so this study was aimed to measure the occurrence of dental caries in a group of 6 years old Iraqi school children and to present a base line data about the dental treatment needs for this group of children. This study was conducted among primary school children; the examination was done for about 60 children (27 boys and 33 girls) in Hay-Aljame'a city in Baghdad. Examination, dental caries assessment and dental treatment needs was recorded according to the basic methods of the oral health surveys of the World Health Organization 1987. The mean value of dmfs was  $15.0167 \pm 8.93762$ , 218 teeth need more than one surface filling while DMFS was  $0.5667 \pm 0.83090$ , 31 teeth were in need of one surface filling. From this study one can conclude that the occurrence of dental caries in posterior primary and permanent teeth (especially upper and lower primary second molar, upper and lower permanent first molar) was higher than other teeth. Dental treatment needs were dental treatment with more than one surface filling for primary teeth and one surface filling for permanent teeth.*

**Keywords:** dental caries, dental treatment needs, children

## 1. Introduction

Dental caries is a microbial disease of the calcified tissues of the teeth characterized by demineralization of the inorganic portion and destruction of the organic substance of the tooth<sup>(1)</sup>. It is one of the most prevalent diseases affecting human being and persists till date as challenge to the medical and dental profession in particular and the society in general. Information on epidemiological figures of dental caries is a fundamental requirement which update our knowledge on changing trends of the of the disease, its treatment needs and helps in understanding ways and means to prevent its onset, limit its progress ion, and consequences<sup>(2)</sup>.

When caries occurs, the first step is to initiate treatment of all caries lesions to stop or at least slow the progression of the disease and to identify the most important causes of the existing condition. Next, or even simultaneously, if possible, the practitioner begins working with the patient and/or parents to achieve the appropriate behavioral modifications required to prevent recurrence<sup>(3)</sup>. Oral health is closely associated with general health and has a great influence on quality of life.<sup>(4,5)</sup>

Previous studies find that oral health problems and inequalities are influenced by demographic and socioeconomic factors, such as education, occupation, income, and the use of health care services<sup>(6-9)</sup>.

## 2. Aims of the Study

- 1) To measure the occurrence of dental caries in a group of 6 years old Iraqi school children.
- 2) To present a base line data about the dental treatment needs for this group of children.

## 3. Materials and Methods

This study was conducted among primary school children aged 6 years old; the examination was done for about 60 children (27 boys and 33 girls) in Hay-Aljame'a city in Baghdad. Consent was taken from the school manager to obtain her permission for examining the children in this study. The data collection extended between 16 March to 22 March, 2017.

Examination and dental caries assessment was recorded according to the basic methods of the oral health surveys of the World Health Organization 1987<sup>(10)</sup>. Each child was examined in the class room in their school, who was seated in the desk and their back is straight and flash light was used for illumination.

Clinical examination was performed using disposable mouth dental mirrors and probes .A systematic approach of examination for dental caries was performed starting from upper right primary second molar or permanent first molar to the upper left primary second molar or permanent first molar in orderly manner, then the lower left quadrant toward the lower right, examination included all the surfaces of the teeth. A tooth was considered to be present when any part of the tooth was visible.

Immediately after the caries status of a tooth is recorded, and before proceeding to the next tooth space, the type of treatment required, if any, should be recorded. The codes for treatment needs were from 0-9 according to WHO, 1987<sup>(10)</sup>.

Interexaminer calibration was performed between the researcher and the supervisor to make a well-trained examiner for collecting the sample.

Statistical analysis of the data was performed by SPSS application.

## 4. Results

The total sample consisted of 60 children (all were with mixed dentition stage). Table (1) demonstrates the descriptive statistics (minimum, maximum, mean and standard deviation) for dental caries of primary teeth, the mean value of dmfs was  $15.0167 \pm 8.93762$ .

Table (2) demonstrates the descriptive statistics (minimum, maximum, mean and standard deviation) for dental caries of permanent teeth, the mean value of DMFS was  $0.6667 \pm 1.12997$ .

Table (3) demonstrates the treatment needs for primary teeth, there were 862 teeth need no treatment, 218 teeth need more than one surface filling, 76 teeth were in need of one surface filling and 17 teeth were in need to pulp care. In the upper jaw, the right and left primary second molars were the most teeth that need treatment with more than one surface filling (26 for both), While in the lower jaw, the lower right primary second molar was the most tooth in need for more than one surface filling (28), followed by the lower left first primary molar (26).

Table (4) demonstrates the treatment needs for permanent teeth, there were 1460 teeth need no treatment (including the non-erupted teeth), 3 teeth need more than one surface filling, 31 teeth were in need of one surface filling and only one tooth was in need to pulp care. In the upper jaw, the right and left permanent first molars were the most teeth that need treatment with one surface filling (8 and 4 respectively), While in the lower jaw, the right and left permanent first molars were the most teeth that need treatment with one surface filling (6 and 13 respectively).

## 5. Discussion

This study was designed to investigate the occurrence of dental caries among a group of 6 years old school children and the treatment needs for them, this age allow studying oral and dental status for mixed dentition. For the diagnosis and recording of caries experience; dmfs index was used in present study. This index allows measurement of the past caries experience indicated by missing and filled fraction, and the present caries by the decayed fraction, so this will present us a base line data about the dental caries and the treatment needs for this group of children. The result of this study showed that the occurrence of dental caries in posterior primary and permanent teeth (especially upper and lower 6, upper and lower e) was higher than other teeth, and this may be attributed to the earlier eruption of these teeth when compared with other teeth.

The mean dmfs was  $15.0167 \pm 8.93762$ , dmft was  $5.8667 \pm 2.67738$ , where as that of permanent teeth; DMFS was  $0.6667 \pm 1.12997$ , DMFT was  $0.5667 \pm 0.83090$  for permanent teeth. This result is higher than that of other studies<sup>(11-14)</sup>, whereas lower than other studies<sup>(15,16)</sup> which may be due to difference in geographic locations, ethnic groups, socioeconomic status, fluoride concentration in water supply and the method used for measuring the dental caries.

Concerning the dental treatment needs for primary teeth, most of the teeth were in need of more than one surface filling, which is better than other studies who found the most needed treatment need was extraction<sup>(16)</sup> or pulp care<sup>(17)</sup>.

The treatment needs for permanent teeth, the most need was one surface filling and minimum number of teeth were in need to pulp care. That's to say there is a need only for the primary line of treatment which gives a hope for the future prevention of dental caries in this age group of children, and it is in accordance with other studies<sup>(14,16-18)</sup> who found the need for single surface filling.

On conclusion: the occurrence of dental caries in posterior primary and permanent teeth (especially upper and lower primary second molar, upper and lower permanent first molar) was higher than other teeth. Dental treatment needs were dental treatment with more than one surface filling for primary teeth and one surface filling for permanent teeth.

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**Table 1:** Descriptive statistics (minimum, maximum, mean and standard deviation) for dental caries of primary teeth

	Minimum	Maximum	Mean	Std. Deviation
ds	0	38.00	14.6333	8.81056
ms	0	4.00	0.0667	0.51640
fs	0	10.00	0.3167	1.53481
dmfs	0	38.00	15.0167	8.93762
dmft	0	13.00	5.8667	2.67738

**Table 2:** Descriptive statistics (minimum, maximum, mean and standard deviation) for dental caries of permanent teeth

	Minimum	Maximum	Mean	Std. Deviation
DS	0.00	4.00	0.5833	0.88857
MS	0.00	5.00	0.0833	0.64550
FS	0.00	0.00	0.0000	0.00000
DMFS	0.00	6.00	0.6667	1.12997
DMFT	0.00	3.00	0.5667	0.83090

**Table 3:** Treatment needs for primary teeth

	0	1	2	3	4	5	6	7	8	9
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
URE	30	0	2	26	0	0	2	0	0	0
URD	37	0	0	21	0	0	2	0	0	0
URC	55	0	3	1	0	0	1	0	0	0
URB	50	0	4	6	0	0	0	0	0	0
URA	46	0	7	7	0	0	0	0	0	0
ULA	45	0	6	9	0	0	0	0	0	0
ULB	51	0	1	8	0	0	0	0	0	0
ULC	52	0	5	3	0	0	0	0	0	0
ULD	38	0	5	16	0	0	1	0	0	0
ULE	25	0	6	26	0	0	3	0	0	0
LRE	19	0	9	28	0	0	4	0	0	0
LRD	31	0	3	23	0	0	3	0	0	0
LRC	52	0	4	4	0	0	0	0	0	0
LRB	57	0	0	3	0	0	0	0	0	0
LRA	56	0	1	3	0	0	0	0	0	0
LLA	56	0	1	3	0	0	0	0	0	0
LLB	57	0	1	2	0	0	0	0	0	0
LLC	56	0	2	2	0	0	0	0	0	0
LLD	29	0	5	26	0	0	0	0	0	0
LLE	20	0	11	1	0	0	1	0	0	0
Total	862	0	76	218	0	0	17	0	0	0

\*The numbers in the first row represent the type of treatment needs required, 0= no treatment, 1= Caries arresting, 2=one surface filling, 3= two or more surface filling, 4=fractured restoration, 5= Bridge element, 6= Pulp care, 7= Extraction, 8/9= Need for other care

**Table 4:** Treatment needs for permanent teeth

	0	1	2	3	4	5	6	7	8	9
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
UR6	50	0	8	1	0	0	1	0	0	0
UR5	60	0	0	0	0	0	0	0	0	0
UR4	60	0	0	0	0	0	0	0	0	0
UR3	60	0	0	0	0	0	0	0	0	0
UR2	60	0	0	0	0	0	0	0	0	0
UR1	60	0	0	0	0	0	0	0	0	0
UL1	60	0	0	0	0	0	0	0	0	0
UL2	60	0	0	0	0	0	0	0	0	0
UL3	60	0	0	0	0	0	0	0	0	0
UL4	60	0	0	0	0	0	0	0	0	0
UL5	60	0	0	0	0	0	0	0	0	0
UL6	55	0	4	1	0	0	0	0	0	0
LR6	47	0	13	1	0	0	0	0	0	0
LR5	60	0	0	0	0	0	0	0	0	0
LR4	60	0	0	0	0	0	0	0	0	0
LR3	60	0	0	0	0	0	0	0	0	0
LR2	60	0	0	0	0	0	0	0	0	0
LR1	60	0	0	0	0	0	0	0	0	0
LL1	60	0	0	0	0	0	0	0	0	0
LL2	60	0	0	0	0	0	0	0	0	0
LL3	60	0	0	0	0	0	0	0	0	0
LL4	60	0	0	0	0	0	0	0	0	0
LL5	60	0	0	0	0	0	0	0	0	0
LL6	54	0	6	0	0	0	0	0	0	0
Total	1460	0	31	3	0	0	1	0	0	0

\*The numbers in the first row represent the type of treatment needs required, 0= no treatment, 1= Caries arresting, 2=one surface filling, 3= two or more surface filling, 4= fractured restoration, 5= Bridge element, 6= Pulp care, 7= Extraction, 8/9= Need for other care