Pattern, Severity and Treatment Needs of Dental Caries among Five-year Kindergarten Children in Baghdad Iraq

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Abstract:

Objective(s): This study carried out to evaluate the severity of dental caries and treatment needs among some Iraqi children, aged (5) years old in Baghdad.

Methods: The sample was selected randomly. The examination of the oral cavity was based on diagnostic criteria marked by the World Health Organization (1987).

Results: The study demonstrated a high prevalence of dental caries (81.20 %), gender difference was not found (P>0.05). The means of dmft and dmfs were found in the present study to be (5.11 ± 0.17, 9.62 ± 0.42 respectively) Results showed that ds fraction constituted the major part of dmfs value followed by ms, while fs fraction reached zero. Concerning ds gender differences was statistically highly significant (P<0.01). Posterior teeth were more susceptible to dental caries, than the anterior teeth. As the occlusal surface was the most affected surface followed by proximate surface. The dental treatment needs were high as 72% of children needed one surface restoration, while extraction (11%) was found to be the lowest need.

Conclusion: The severity of dental caries was very high in primary dentition. The tooth susceptibility to dental caries in lower posterior teeth was higher than upper. While the picture was differ in anterior teeth.

keywords: dental caries, treatment needs, 5 year old

Introduction:

Dental caries is a post-eruptive bacterial disease affected the dental hard tissue. The disease is the results of interplay of several factors including host factors (susceptible tooth and saliva), dietary sugar and cariogenic bacteria in the presence of sufficient time. Dental caries is the most prevalent oral diseases in children and teenagers, so the first years of child life is considered to be of significant importance in the prevention of oral diseases [1, 2]. This study conducted to explore dental caries and treatment needs among 5 years old children as this age considered to be index age by WHO (index age) [3]. The information obtained can aid in planning dental health services in our country.

Materials & Methods:

The study was conducted during December 2004- may 2005. The sample collected (multiphase randomize sample) from kindergartens, which were distributed in Baghdad. A total of 569 children (318 males and 251 females) of 5 years of age were included. Their age recorded according to the last birthday. Clinical examination was carried out using plan mouth mirrors (No. 4) (Derlfa, West Germany) along with brand new, sharp (00) probes (Derlfa, West Germany), using portable lamp for artificial illumination. The children were examined under standardized condition by investigator while the children sitting on a portable chair, however radiographic examinations were not performed. Diagnosis and recording of dental caries and treatment need were assessed using the criteria described by WHO 1987 at surface and tooth level (dmfs, dmft) with excluding to the permanent teeth [3].

Result:

Distribution of the sample according to the gender is shown in Table (1). Results indicate that 18.80% of children examined were caries-free as seen in Table (2).

Table 1 Distribution of The Sample by Gender

GENDER	No.	percentage
Male	318	55.89%
Female	251	44.11%
Total	569	100.00%

Table 2 Distribution of caries free children by gender

GENDER	free	percentage
Male	**62**	**10.90%**
Female	**45**	**7.91%**
Total	**107**	**18.80%**

X_2 =0.226, P value = 0.634

the statistical analysis of the presented study showed that no significant differences were found in respect to the percentage of caries free between male and female (P>0.05). Table (3) shows that, the mean dmft and dmfs index were 5.11+ 0.17, 9.62 + 0.42 respectively. When fractions of the dmfs were analyzed, ds fraction constituted the major part of dmfs value followed by ms, while fs fraction was near to zero in females and zero for males. The sex difference was recorded in ds only, with statistically highly significant differences (P<0.01) as seen in Table (4).

Table 3 Caries -Experience and severity (dmft, dmfs) (Mean & SE) of deciduous teeth by Gender

	GENDER	N	Mean	SE
dmfs	**Male**	318	10.42	0.57
	Female	251	8.61	0.61
	Total	569	9.62	0.42
dmft	**Male**	318	5.37	0.22
	Female	251	4.76	0.25
	Total	569	5.11	0.17

Table 4: Fractions of dental caries (Mean & SE) (ds, ms, fs) of deciduous teeth by gender

	GENDER	N	Mean	SE	t value	P value
ds	**Male**	318	9.22	0.51	2.884	0.008
	Female	251	7.14	0.48		
	Total	569	8.30	0.36		
ms	**Male**	318	1.21	0.19	-0.789	0.121
	Female	251	1.47	0.31		
	Total	569	1.32	0.17		
fs	**Male**	318	0.00	0.00	-1.126	0.024
	Female	251	0.004	0.06		
	Total	569	0.002	0.04		

Figure(1) demonstrate that the mandibular molars were found to be the most frequently involved tooth by caries followed by the maxillary molars and the maxillary centrals, while the mandibular canines were the least frequently affected tooth by caries.
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Figure (2) demonstrate the distribution of caries experience (dmfs) according to teeth by gender, no statistically significant difference between male and female (P>0.05).

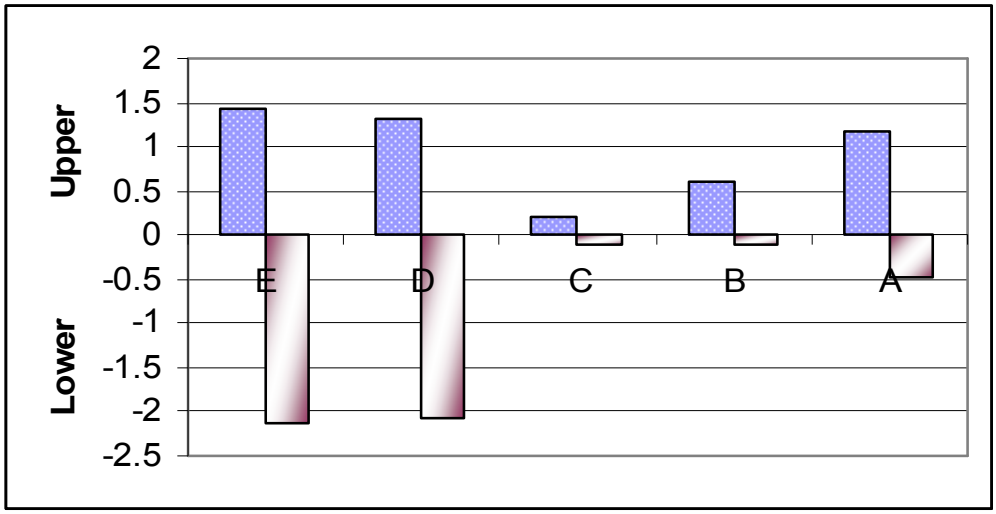

Figure 1: **Caries experience (dmfs) according to teeth**

A = First central incisor **B** = Second incisor
C = Canine **D** = First molar
E = Second molar

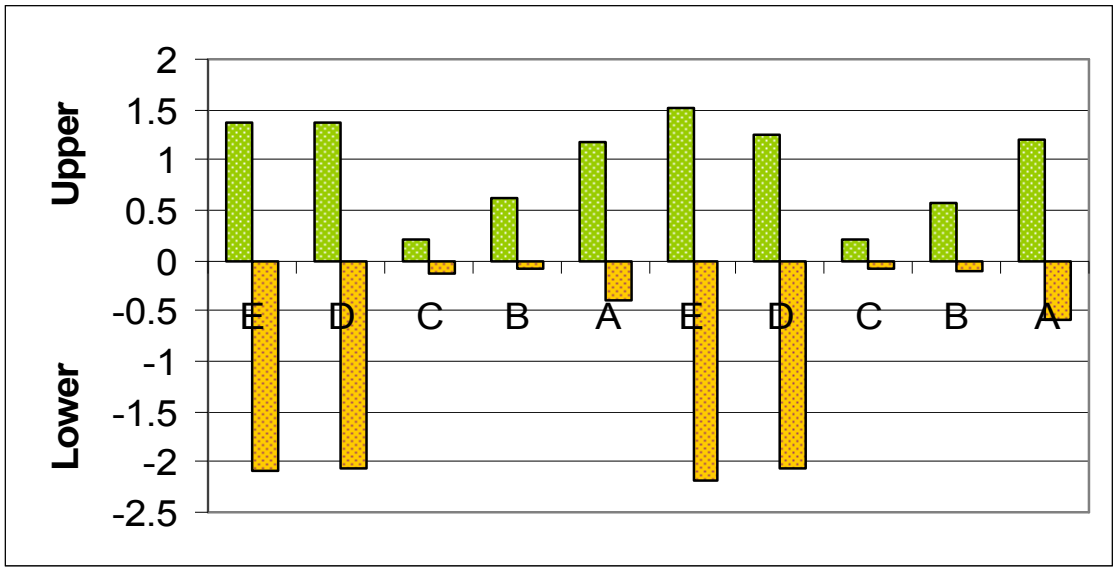

Figure 2: Caries experience (dmfs) according to teeth by gender.

Figure (3) showed that Posterior segment were more susceptible to dental caries, than the anterior segment. As occlusal surface were the most common surface affected by caries followed by proximal then lingual as seen in Table (5).

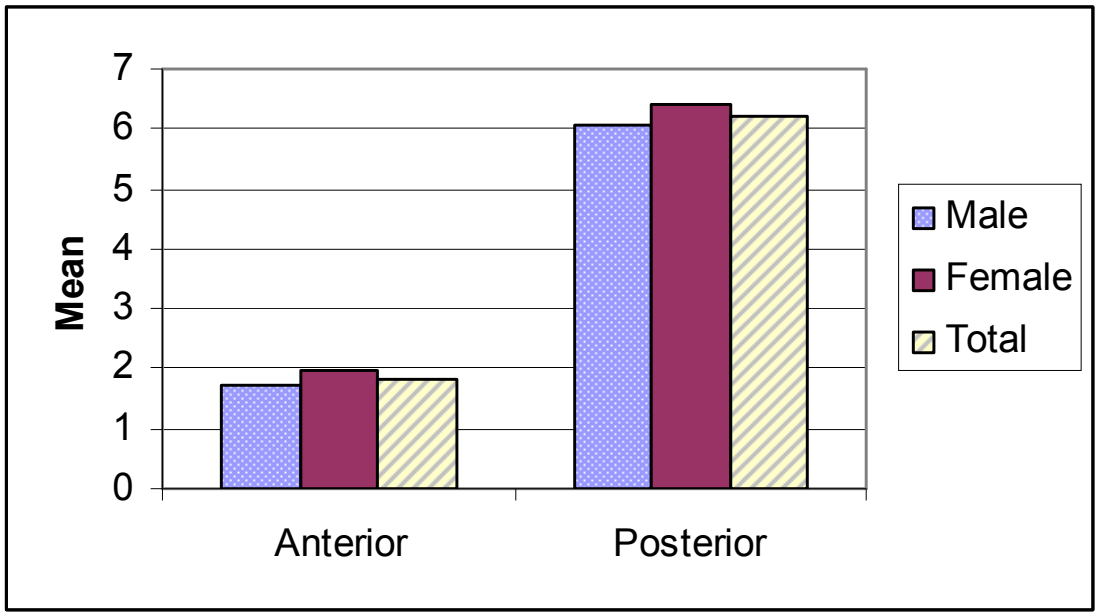

Figure 3: Caries experience represented anterior & posterior segments by *dfs* (Mean & SE) according to the tooth by gender

Table 5: Caries experience represented by *dfs* (Mean & SE) according to the tooth surfaces by gender.

SURFACE	Gender	Mean	SE
lingual	Male	0.71	0.09
	Female	0.78	0.09
	Total	0.75	0.06
buccal	Male	0.61	0.09
	Female	0.49	0.07
	Total	0.56	0.06
proximal	Male	2.98	0.23
	Female	3.26	0.26
	Total	3.1	0.17
occlusal	Male	3.47	0.14
	Female	3.84	0.16
	Total	3.63	0.10

Tables (6) demonstrate that the mean value (dmfs) of occlusal surface of posterior teeth was the highest, while the mean value (dmfs) of the lingual surface of anterior teeth was the lowest.

About 72%) of children needed for simple one surface restoration. While, 55% need two surface restoration, and 34%required pulp care, while the lowest was need for extraction (11%) as shown in Table (7).

Table 6: Caries experience (mean + SE) *dfs* of anterior & posterior segments according to the tooth surfaces by gender.

Surface of segment	Gender	Mean	SE
Lingual Anterior	**Male**	0.20	0.05
	Female	0.21	0.05
	Total	0.21	0.04
Buccal Anterior	**Male**	0.35	0.07
	Female	0.29	0.06
	Total	0.32	0.05
Proximal Anterior	**Male**	1.17	0.13
	Female	1.47	0.18
	Total	1.30	0.11
Buccal Posterior	**Male**	0.26	0.04
	Female	0.21	0.04
	Total	0.24	0.03
Occlusal Posterior	**Male**	3.47	0.14
	Female	3.84	0.16
	Total	3.63	0.1
Lingual Posterior	**Male**	0.51	0.06
	Female	0.58	0.07
	Total	0.54	0.05
Proximal Posterior	**Male**	1.81	0.14
	Female	1.80	0.14
	Total	1.80	0.10

Table 7: Distribution of children according to the level of treatment need by gender.

	Male		Female		Total	
Treatment needs	**No.**	**Percentage**	**No.**	**Percentage**	**No.**	**Percentage**
Fissure Sealant	82	14%	60	11%	142	25%
One surface	228	40%	184	32%	412	72%
Two surface	189	33%	124	22%	313	55%
pulp care	105	19%	86	15%	191	34%
Extraction	44	8%	18	3%	62	11%
Others	54	10%	36	6%	90	16%

Discussion:

The prevalence of dental caries in the present study were higher than previous Iraqi studies (78.7%, 60.93% and 86.9%) respectively, in compares with other one must keep in mind the different in sample size, age and geographic area [4,5,6]. Also the prevalence of dental caries in this study was more than that reported in neighboring countries to Iraq as in Jordan and Syria (43% and 73.86%) respectively [7,8] and some well developed countries as in USA and Brazil (80.53% and 67%) respectively [9,10], this may be attributed to the high sugar intake and poor oral hygiene which need to be confirmed by other studies, while it was lower than that reported by other study which was 90.5% in Mexico [11]. Results showed that females had significantly lower caries experience than males , this may be attributed to the difference in the time of teeth eruption and this result is in agreement with [12,6,13,10]The severity of dental caries in the present study was higher than that reported by previous Iraqi studies (7.81 and 5.9) [6,12] and world studies in United Kingdom and Brazil which was (3.51, 1.68 and 1.84) respectively [9,14,10]. The present study reported a higher means of decayed surfaces ***ds*** followed by ***ms*** then ***fs***. This may indicate the minimal dental treatment that those children had and even when treatment was present it was directed to extraction rather than preserving.

The mandibular molars were more affected than maxillary molar ,and maxillary anterior were involved more than the mandibular anterior ,this may attributed to the early eruption of posterior and to differences in the morphology of the tooth, the finding was in accordance with Gray study [15].the present study showed that the occlusal surface were the most susceptible to dental caries followed by proximate ,this may be due to the deep pits and fissures of the occlusal surface favoring food stagnation and difficulty of cleaning of these area. The high percentage of children in need to different types of dental treatment reflects poor dental conditions; this may be due to parent negligence. Comprehensive preventive programs are essential to improve dental health among five years kindergarten children.

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