

Dental Caries and Treatment Needs among Kindergarten Children in Al-Basrah Governorate/Iraq

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ABSTRACT

Background: Dental caries is a disease occurs in the world in both developed and developing countries, it is still widespread among children and it can be controlled but not eliminated, most of tooth loss occurs due to dental caries and its complications. The aim of this study was to estimate the occurrence, and severity of dental caries and treatment needs among kindergarten children in Al-Basrah governorate.

Materials and methods: The sample consisted of 1000 kindergarten children at age of 4-5 years old (445 boys and 555 girls) from urban areas in Al-Basrah city. Diagnosis and recording of dental caries and treatment needs were done according to the criteria of WHO (1987).

Results: The percentage of dental caries was (80.8%) of the total sample. The dmfs value was higher among boys compared to girls with no statistically significant difference ($P > 0.05$). The dmfs value among 5 years old children were found to be higher than children aged 4 years with statistically highly significant difference ($P < 0.01$). The higher percentage of examined children was in need of one surface filling (71.6%) followed by those in need of preventive or fissure sealant (61.3%).

Conclusions: A study revealed a high prevalence of dental caries was found among Kindergarten children in Al-Basrah governorate, thus there is a need for preventive programs among those children.

Keywords: Dental caries, treatment needs, oral health, kindergarten children. (*J Bagh Coll Dentistry* 2016; 28(4):149-152)

INTRODUCTION

Dental caries is a common oral disease in children and the most important dental health problem in developing countries⁽¹⁾. 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⁽²⁾.

Several Iraqi studies recorded a high prevalence and severity of dental caries among preschool children in different geographical locations⁽³⁻¹¹⁾. Treatment of dental caries has been identified as critical to both oral and general health⁽¹²⁾. The type of treatment needed tend to become more complicated as well as need for treatment increased with age^(3,13).

This study was designed to evaluate the occurrence and severity of dental caries, also to measure dental treatment needs for dental caries among kindergarten children in Al-Basrah governorate.

MATERIALS AND METHODS

The sample included kindergarten children at age of 4-5 years old from urban areas in Al-Basrah governorate. The sample consisted of 1000 child, 445 boys and 555 girls (kindergartens and children were selected randomly).

Permission was obtained from Directorate of Education of Al-Basrah governorate in order to meet individual with no obligation; also a special consent prepared and distributed to the parents to obtain permission for including their children in the study and to have their full cooperation. Diagnosis and recording of dental caries as well as treatment needs was assessed according to the criteria described by WHO⁽¹⁴⁾. Clinical examination was conducted using plane mouth mirror and dental probe.

Analysis and processing of the data were carried out using Statistical Package for Social Sciences (SPSS) version 21, the non-parametric tests were used for the non normally distributed variables represented by Mann-Whitney test to reveal the significance of difference in median and mean rank. P-values less than 0.05 were considered as statistically significant, while P-values less than 0.01 were recorded as a highly significant.

RESULTS

Table (1) shows the distribution of the total sample by age and gender. The sample was consisted of boys and girls as a higher percentage of girls was noticed compared to boys. The percentage of dental caries in the present study was (80.8%) among total sample. Mean rank values of ds, ms, fs and dmfs among children by age and gender are illustrated in the Table (2).

In this study boys were found to have higher dmfs mean rank value than girls, but the difference was found to be no statistically

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significant ($P>0.05$). Concerning age the data of present study found that the mean rank value of dmfs among 5 years children was higher than children aged 4years; the difference was statistically highly significant ($Z=-3.643$, Mann-Whitney= 0.001 , $P<0.01$). However for the components of dmfs index the results illustrated that for total sample the decay teeth (ds) was had a higher mean rank value for boys than girls with no statistically significant difference ($P>0.05$). Regarding age, the mean rank value of ds at age of four years was found to be lower than children aged 5 years, the difference was statistically highly significant ($Z=-3.302$, Mann-Whitney= 0.001 , $P<0.01$). Concerning age and

gender the differences of the extracted teeth by caries (ms) and filled surface (fs) due to caries were statistically not significant ($P>0.05$) except (ms) regarding age with statistically significant difference ($Z=-2.545$, Mann-Whitney= 0.011 , $P<0.05$).

The percentages of children with each category of dental treatment needs by gender are illustrated in Figure (1). The higher percentages of children were found to be in need of one surface filling followed by those in need of preventive or fissure sealant, two or more surface filling and pulp care and restoration while the lower percentage showed among those in need of extraction.

Table 1: The distribution of total sample by age and gender

Age (year)	Gender					
	Boys		Girls		Total	
	No.	%	No.	%	No.	%
4	206	20.6	300	30	506	50.6
5	239	23.9	255	25.5	494	49.4
Total	445	44.5	555	55.5	1000	100

Table 2: Caries-experience (Median, Mean Rank of ds, ms, fs, dmfs) among children by age and gender.

Age	4			5			Total		Mann-Whitney test	P-Value	
	Gender	Boys	Girls	Total	Boys	Girls	Total	Boys			Girls
ds	Median	4	4	4	7	6	6	6	5	0.001	<0.01**
	Mean Rank	252.2	254.4	470.8	258.0	237.6	530.9	513.9	489.7		
ms	Median	0	0	0	0	0	0	0	0	0.011	<0.05*
	Mean Rank	252.2	254.4	490.1	248.8	246.3	511.2	501.6	499.6		
fs	Median	0	0	0	0	0	0	0	0		NS
	Mean Rank	253.0	253.8	500.5	248.0	247.0	500.5	500.6	500.4		
dmfs	Median	4	5	5	8	6	7	6	5	0.001	<0.01**
	Mean Rank	252.2	254.4	467.8	259.0	236.8	534.0	515.7	488.3		

* Significant ** Highly Significant

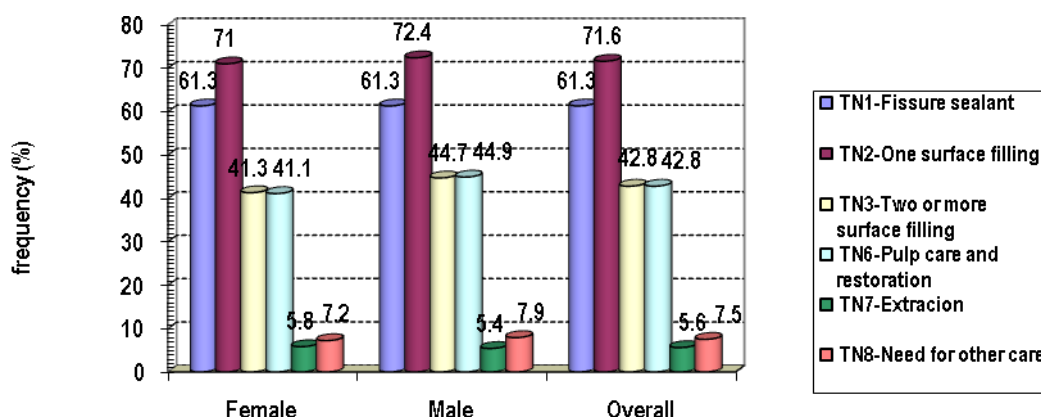


Figure 1: Distribution of children according to the type of the treatment need required by gender

DISCUSSION

This study was achieved in Al-Basrah governorate because there was no previous epidemiological study concerning this age carried out in this governorate so this study's results can be considered as base line data for comparison with other studies in Iraqi governorates and different parts of the world.

In this study the percentage of dental caries was found to be (80.8%) for 4-5 years- old kindergarten children. The high caries prevalence recorded by this study may partly be attributed to variances in the environmental condition as lower fluoride level in drinking water in Iraq, the concentration of fluoride in communal water supply in different governorates in Iraq is ranging from 0.12- 0.22 ppm⁽³⁾. However when comparing this result with previous Iraqistudies this percentage was higher than that reported by many studies^(3,4,6,11,15-18) and was lower than that reported by other Iraqi studies^(10, 19, 20).

In general, variation in caries experience between this study and other Iraqi studies may be partially attributed to variation in dietary habits, oral hygiene measures as well as dental health services between governorates; however this may need further studies to confirm this observation.

Concerning gender differences, boys were found to have higher dmfs mean rank value than girls with no statistically significant difference, this result is similar to that recorded by some Iraqi studies^(9, 11, 17, 20-22) for the same age group, and this may be related to the earlier shedding of deciduous teeth in females compared to males. According to age, in this study caries experience was discovered to be increase with age, it was higher among 5 years than 4 years children with highly significant difference, this result is similar to that reported by Iraqi studies^(3,6,10,11,13,20,23-26). This may be related to accumulative and irreversible nature of dental caries.

This study showed that the (ds) fraction was higher than (ms) and (fs) components of dmfs index, which is an indication of a poor dental treatment. The (ms) fraction was higher than (fs) fraction, which means that even if treatment is present; it is directed toward extraction rather than restoration. This result is in agreement with other Iraqi studies^(5,10,11,20).

Most of children in this study were in need of one surface filling (71.6%), that is to say in need for restorative treatment to prevent progression of dental caries, followed by preventive or fissure sealant (61.3%), that reflecting these were in need of recall for regular visits and prophylactic application of fluoride therapy and fissure sealant to prevent initiation of dental caries. This finding

is in agreement with many Iraqi studies^(3,18,27) where the majority of children were in need of restoration.

The increase in the prevalence of dental caries among kindergarten children in Al-Basrah city with the increase in dental treatment need indicate the need for either a public or school preventive programs for those children, involving dental health education and improvement of dental knowledge and attitude towards both oral hygiene and proper nutrition.

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