

Dental caries and treatment needs among 12 year-old school children in Heet city/Al-Anbar governorate/Iraq

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ABSTRACT

Background: Dental caries is one of the most prevalent chronic diseases of people worldwide that lead to the pain and disability across all age groups and still consider as a major cause of tooth loss. The aim of this study was to assess the prevalence and severity of dental caries and treatment needs among school children in Heet city.

Materials and methods: The sample included all school children at age of (12 years old) males and females from urban areas in Heet city. Diagnosis and recording of dental caries and treatment needs were done according to the criteria of WHO.

Results: The prevalence of dental caries was (90.2%). The DMFS/dmfs values were (5.85±0.168, 1.57±0.146) respectively for the total sample. Females were found to have higher value as compared to males with statistically highly significant difference ($P < 0.01$) for DMFS, while the opposite picture was found for dmfs. The higher percentage of examined children were in need of preventive or fissure sealant (91.6%), followed by those in need of one surface filling (80.4%).

Conclusions: School children were found to have a high prevalence of dental caries, thus there is a need for preventive programs among those children.

Key words: Dental caries, treatment needs, Heet city. (J Bagh Coll Dentistry 2014; 26(3):160-163).

INTRODUCTION

Several Iraqi studies recorded a high prevalence and severity of dental caries among different age groups as well as in different geographical locations ⁽¹⁻⁹⁾. The type of treatment required was found to be affected by several factors as age, area of residency, gender and socioeconomic variables ⁽¹⁰⁾. The type of treatment needed tend to become more complicated as well as need for treatment increased with age ^(2,4).

This study was designed to evaluate the prevalence and severity of dental caries, also to measure dental treatment needs for dental caries among school children.

MATERIALS AND METHODS

The sample included all school children at age of (12 years old) males and females from urban areas in Heet city/Anbar governorate. The sample consisted of (872), 454 males and 418 females. Permission was obtained from the Heet education institution in order to meet subjects with no obligation, the purpose of the study was explained to the school authority to ensure full cooperation, also special consents were distributed to parents to obtain permission for including their children in the study with full cooperation. Children without permission from their parents, with serious systemic diseases and/or uncooperative were not examined, so the final total sample of (764) were examined.

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After completion of clinical examination, parents were informed about oral health condition and treatment needs for their children using special forms.

Examinations and oral health assessments were performed according to the Basic Methods of WHO (1987). Analysis and processing of the data were carried out using SPSS version 19, statistical tests used are paired t-test, Z-test, Z-proportion, Chi-square and Mann-Whitney U test and Kruskal Wallis tests used instead of t-test and ANOVA test respectively because data were found to be not normally distributed. 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

Data analysis showed that only (9.8%) of the total sample were caries-free, males demonstrated a higher percentage of caries-free compared to females (12.7% for males and 6.5% for females), thus the prevalence of dental caries in the present study was (90.2% among total sample). Females were found to have higher DMFS mean rank value than males, this difference was found to be statistically highly significant ($P < 0.01$), the DS value was found to be the higher fraction for the total sample, the difference for DS was found to be statistically highly significant between the two gender ($P < 0.01$), while differences for MS and FS was found to be statistically not significant ($P > 0.05$) (Table 1).

Mean rank values of dmfs, ds, ms, and fs are illustrated in the Table (2). In this study males

were found to have higher dmfs mean rank value as compared to females, this difference was statistically highly significant ($P < 0.01$).

The extracted teeth by caries (ms) was found to be nearly similar to decayed surfaces (ds) of the teeth. The difference for ds/ms was found to be statistically highly significant between the two gender ($P < 0.01$), while for fs fraction, there was no statistically significant difference ($P > 0.05$).

Percentages of children with each category of dental treatment needs by gender are illustrated in Figure (1). The higher percentage of children were found to be in need of preventive or fissure sealant, followed by those in need of one surface filling, two or more surface filling and those in need of crown for any reason constitute the lower percentage.

Table 1: Caries-experience DMFS, DS, MS, FS among 12 year-old school children by gender.

Caries-experience	Gender	Mean	±SE	Median	Mean Rank	Mann-Whitney U	Z-test
DS	Males	4.78	0.196	4.00	362.19	64289.500	-2.742**
	Females	5.56	0.220	5.00	405.90		
	Total	5.14	0.147	4.50			
MS	Males	0.52	0.093	0.00	382.31	72518.500	-0.054
	Females	0.51	0.096	0.00	382.72		
	Total	0.52	0.067	0.00			
FS	Males	0.15	0.037	0.00	376.63	70198.500	-1.823
	Females	0.23	0.046	0.00	389.26		
	Total	0.18	0.029	0.00			
DMFS	Males	5.45	0.229	5.00	361.02	63811.500	-2.898**
	Females	6.32	0.247	6.00	407.25		
	Total	5.85	0.168	5.00			

**Highly significant, $P < 0.01$

Table 2: Caries-experience dmfs, ds, ms, fs among 12 year-old school children by gender

Caries-experience	Gender	Mean	±SE	Median	Mean Rank	Mann-Whitney U	Z-test
ds	Males	0.95	0.114	0.00	397.21	66581.500	-2.774**
	Females	0.58	0.089	0.00	365.55		
	Total	0.78	0.074	0.00			
Ms	Males	1.13	0.179	0.00	395.50	67279.500	-3.308**
	Females	0.40	0.088	0.00	367.52		
	Total	0.79	0.105	0.00			
fs	Males	0.01	0.007	0.00	382.37	72544.500	-0.139
	Females	0.01	0.006	0.00	382.65		
	Total	0.01	0.005	0.00			
Dmfs	Males	2.08	0.237	0.00	403.48	64015.000	-3.732**
	Females	0.99	0.150	0.00	358.32		
	Total	1.57	0.146	0.00			

**Highly significant, $P < 0.01$

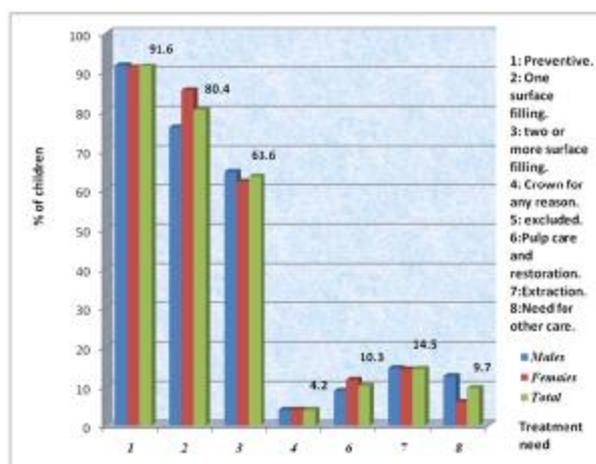


Figure 1: Distribution of children according to the type of treatment needs

DISCUSSION

There is no previous epidemiological study concerning population in Heet city, so results of the present study can be considered as a base line data for comparison with other studies in Iraqi governorates and different parts of the world. In this study the prevalence of dental caries was found to be (90.2%) for 12 year-old school children. This percentage was higher than that reported by Mahmood⁽¹²⁾, Al-Salman⁽³⁾, Ahmed et al⁽¹³⁾, Baram⁽¹⁴⁾, and Al-Sadam⁽⁹⁾ in Iraq. While this percentage was lower than that reported by Al-Haddad⁽¹⁵⁾ in Yemen, Ali⁽¹¹⁾ and Al-Ghalebi⁽⁸⁾ for other ages in Iraq. Unfortunately only a few Iraqi studies are present regarding the age index of 12-years to compare with data recorded by the current study. The high caries prevalence recorded by this study may partly be attributed to lower fluoride level in drinking water in Iraq that was ranging between 0.12-0.22⁽⁴⁾.

For the diagnosis and recording of caries-experience, DMFS/dmfs indices were used in present study. The mean DMFS value was higher than that recorded by Baram⁽¹⁴⁾, Al-Sadam⁽⁹⁾ for age of 12 years and Diab⁽¹⁶⁾, Al-Ghalebi⁽⁸⁾ for other age groups, while dmfs value was lower than that recorded by Diab⁽¹⁶⁾, Jabber⁽¹⁷⁾, Al-Ghalebi⁽⁸⁾ for other age groups and Al-Sadam⁽⁹⁾ for 12 years-old age. Variation in dietary habits, oral hygiene measurements as well as dental health services between governorates can explain the variation in caries-experience between the present study and others. It is worth to mention that values DMFS/dmfs may be underestimated as bitewing radiographs were not taken, for the detection of interproximal caries. Females had statistically higher caries-experience than males for permanent teeth, this result is similar to that recorded by Baram⁽¹⁴⁾ for the same age group, Diab⁽¹⁶⁾ and Al-Ghalebi⁽⁸⁾ for other age groups. This finding may be attributed to the earlier eruption of permanent teeth in females than males of the same age group, therefore female's teeth may be exposed to environmental factors more than males, thus increasing risk for dental caries^(1,18,19). At the same time, females were found to have a lower dmfs values compared to males which was statistically highly significant, this is may be related to the earlier shedding of deciduous teeth in females compared to males as recorded by previous Iraqi studies. This study shows that the DS fraction was higher than MS and FS components of DMFS index, an indication of a poor dental treatment. MS/ms fraction was higher than FS/fs fraction, this mean that even if treatment is present, it is toward extraction rather

than restoration. This result is in agreement with other studies by Baram⁽¹⁴⁾, Al-Ghalebi⁽⁸⁾.

Most of children in this study were in need of preventive or fissure sealant (91.6%), that is to say in need of recall for regular visits and the prophylactic application of fluoride therapy and fissure sealant to prevent initiation of dental caries. The second type of treatment needed was the one surface filling (80.4%), followed by two or more surface filling (63.6). The values reflecting the increase need for restorative treatments to prevent progression of dental caries. This result was in agreement with results found by Al-Ghalebi⁽⁸⁾, and Al-Sadam⁽⁹⁾ in Iraq where the majority of children were in need of restoration.

The increase in the prevalence of dental caries among school children in Heet 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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