

Caries experience and treatment needs among footballers in Baghdad city

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ABSTRACT

Background: footballers may have poor oral health like elevated levels of dental caries. The purpose of this study was to estimate the prevalence and severity of dental caries in Iraqi footballers and to measure dental treatments needs.

Materials and methods: 403 Iraqi males footballers aged from 18-32 years were included in the study. The cases were recruited from 18 clubs in Baghdad city.

Results: the results of present study showed increased percent of caries experience according to age increase and decreased dental caries percent as education level increased among Iraqi footballers. Decayed component was found to be the largest of DMFS value compared to MS and FS among all age groups, Caries experience was found to be increased as age increase and differences were statistically significant between the three age groups except at DS. The difference was found significant between education level and DS and FS. Our results showed that all footballers are in need to dental treatment.

Conclusion: in Iraqi footballers the percent of caries experience decreased as education level increased.

key words: Dental caries, footballer. (J Bagh Coll Dentistry 2018; 30(2): 86-91)

INTRODUCTION

Dental caries is a demineralization of the inorganic part of the tooth with the dissolution of the organic substance depending on interaction of several factors: oral micro flora (acidogenic bacteria) diet (fermentable carbohydrate), time and host^(1,2). It is the most prevalent chronic disease and most common infectious disease affecting persons of both gender in all races and every age group^(3,4). The disease may start early in life, if not treated it may progress to involve bulk tissues and end up with tooth loss^(5,6). Football is one of the most popular team sports in the world⁽⁷⁾. Soccer players need to keep their health status to be able to show their high performance and should not be put at risk to stop working during the competition by general or oral health problems because soccer players would lose their salary if they are not able to continue to play⁽⁸⁾. Iraq is one of the developing countries that suffer from increasing in caries prevalence and severity⁽⁹⁻¹¹⁾. Many studies found that caries prevalence as well as caries severity was increased in developing country while the inverse was seen in industrialized country. This was attributed to the implementation of preventive measure such as water fluoridation, introduction of fluoridated tooth paste, mouth rinses and changes in dietary habit and dental education^(12,13). Exploratory analyses from London Olympic games 2012 suggested that caries was associated with negative impacts on life quality and self-Other than symptomatic effects, psycho-social

reported performance. impacts of poor oral health are recognized as a major influence on quality of life. Therefore, if oral health is poor among professional footballers, it would be reasonable to expect an impact on quality of life and potentially performance⁽¹²⁾. The aim of this study was to estimate the prevalence and severity of dental caries in relation to age, level of education and other variables related to sport and to measure dental treatments needs and evaluate the effects of age and duration of sport activity on dental caries of footballers in Baghdad /Iraq.

MATERIALS AND METHODS

This study was carried out among adult males professional football players (18-32 years) in Baghdad city governorate in Iraq. The sample involved 403 male footballers who were recruited from 18 clubs in Baghdad city during November 2016 till the end of March 2017. These clubs were classified into two categories: excellent degree club of 203 footballer and first degree club have 200 footballer according to Iraqi football association.

Dental caries were diagnosed and recorded according to the index⁽¹³⁾. Clinical examination was conducted using plane mouth mirror and dental explorer. In regarding to the surface examination started with the mesial surface, followed by the occlusal, distal, buccal and lingual for all teeth examined⁽¹⁴⁾. The treatment required was registered, diagnosis and recording were according to criteria of WHO⁽¹³⁾. We use descriptive analysis (frequency, percentage, SD, p-value and graphs) and inferential analysis (levene test, T-test, Chi-square, person correlation)

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RESULTS

Table (1) shows the distribution of the total sample by age, level of education and duration of playing. As seen in table (1) distribution of caries free among the footballers by age, level of education, duration of Playing and club type. An increased percent of dental caries among footballers with age while dental caries decreased as education level increased. Table (2) reveals the mean values and standard deviation of caries experience by fraction in permanent dentition, concerning three age groups footballers. Decayed component was found to be the largest of DMFS value compared to MS and FS among all age groups, Caries experience was found to be increased as age increased and differences was statistically significant between the three age groups except at DS, the caries experience found to be decrease with age increase with no significant difference, with using multiple comparisons between each age group with other group, the second age group with last age group in all caries experience component with the DMFS, FS and MS the results were statistically not significant difference.

Table (3) demonstrates the mean values and standard deviation of caries experience, concerning level of education of footballers. Decayed component was found to be the largest

of DMFS value compared to MS and FS among all education levels groups. The value of decayed component in education levels 1 (primary school) in DS, MS and DMFS was found to be higher than other education levels 2 (Secondary school) and 3 (institute/ college) except at FS, Caries experience was found to be the largest value in education levels 3 (institute/ college) than education levels 1 and 2 and differences was statistically significant between the three education levels groups except at MS and DMFS. Table (4) demonstrates the descriptive and statistical test of caries experience of permanent teeth among footballers by duration of playing. In this table caries experience was found to be increased as duration of playing increase and differences was statistically significant between the duration of playing groups except at DS, the caries experience found to be decrease with duration of playing increase with no significant difference, with using multiple comparisons between each duration of playing group with other group. Figure (1) shows that all footballers are in need to dental treatment. The highest need for dental care was at least one tooth need one surface filling (74.44%), followed by 33.75% in need of bridge, 27.54% needs two or more surface filling and the lowest was at fissure sealant 0.284% among footballers.

Table 1: Distribution of the total sample and caries among footballer by age, level of education and duration of playing

Variables	Caries		Caries Free		
	No.	%	No.	%	
Age (Year)	18-22	193	47.89	28	14.51
	23-27	144	35.73	16	11.11
	28-32	66	16.38	3	4.55
Education level	1 (Primary school)	134	33.25	7	5.22
	2 (Secondary school)	184	45.66	26	14.13
	3 (institute/ college)	85	21.09	14	16.47
Duration of Playing (Year)	1-4	217	53.85	31	14.29
	5-8	124	30.77	13	10.48
	9-12	62	15.38	3	4.84

Table 2: Descriptive and statistical test of caries experience of permanent teeth among footballers by Age group.

Age (year)	Variables	Mean	±SD	p-value	Games-Howell post hoc test	Sig.
1 (18-22)	DS	5.109	4.084	0.680	1 X2	-----
2 (23-27)		5.069	6.312		1X3	----
3 (28-32)		4.485	5.094		2X3	----
1 (18-22)	MS	2.047	3.964	0.004*	1 X2	0.0008*
2 (23-27)		3.750	5.839		1X3	0.025*
3 (28-32)		4.258	6.330		2X3	0.845
1 (18-22)	FS	1.130	2.445	0.003*	1 X2	0.101
2 (23-27)		1.965	4.388		1X3	0.001*
3 (28-32)		2.848	3.579		2X3	0.274
1 (18-22)	DMFS	8.285	6.983	0.007*	1 X2	0.027*
2 (23-27)		10.785	9.831		1X3	0.021*
3 (28-32)		11.591	9.016		2X3	0.829

*Significant (p-value<0.05)

Table 3: Descriptive and statistical test of caries experience of permanent teeth among footballers by Level of education.

Level of education	Variables	Mean	±SD	P-value	Games-Howell post hoc test	Sig.
1 (Primary school)	DS	6.754	6.673	0.000*	1 X2	0.000*
2(Secondary school)		4.060	3.945		1X3	0.001*
3(institute/ college)		4.235	3.797		2X3	0.935
1 (Primary school)	MS	3.246	5.727	0.718	1 X2	---
2(Secondary school)		3.016	5.014		1X3	---
3(institute/ college)		2.659	4.725		2X3	---
1 (Primary school)	FS	1.052	2.122	0.020*	1 X2	0.037*
2(Secondary school)		1.880	3.796		1X3	0.025*
3(institute/ college)		2.376	4.304		2X3	0.634
1 (Primary school)	DMFS	11.052	9.665	0.083	1 X2	---
2(Secondary school)		8.957	7.890		1X3	----
3 (institute/ college)		9.271	7.777		2X3	----

*Significant (p-value<0.05)

Table 4: Descriptive and statistical test of caries experience of permanent teeth among footballers by duration of playing.

Duration of playing (year)	Variables	Mean	±SD	p-value	Games-Howell post hoc test	Sig.
1 (1-4)	DS	5.037	4.124	0.980	1 X2	-----
2 (5-8)		4.960	6.431		1X3	----
3 (9-12)		4.903	5.500		2X3	-----
1 (1-4)	MS	2.235	4.020	0.004*	1 X2	0.123
2 (5-8)		3.347	5.511		1X3	0.011*
3 (9-12)		5.097	7.260		2X3	0.221
1 (1-4)	FS	.959	1.961	0.000*	1 X2	0.002*
2 (5-8)		2.565	4.969		1X3	0.002*
3 (9-12)		2.629	3.531		2X3	0.994
1 (1-4)	DMFS	8.230	6.817	0.001*	1 X2	0.024*
2 (5-8)		10.871	8.971		1X3	0.005*
3 (9-12)		12.629	10.66		2X3	0.495

*Significant (p-value<0.05)

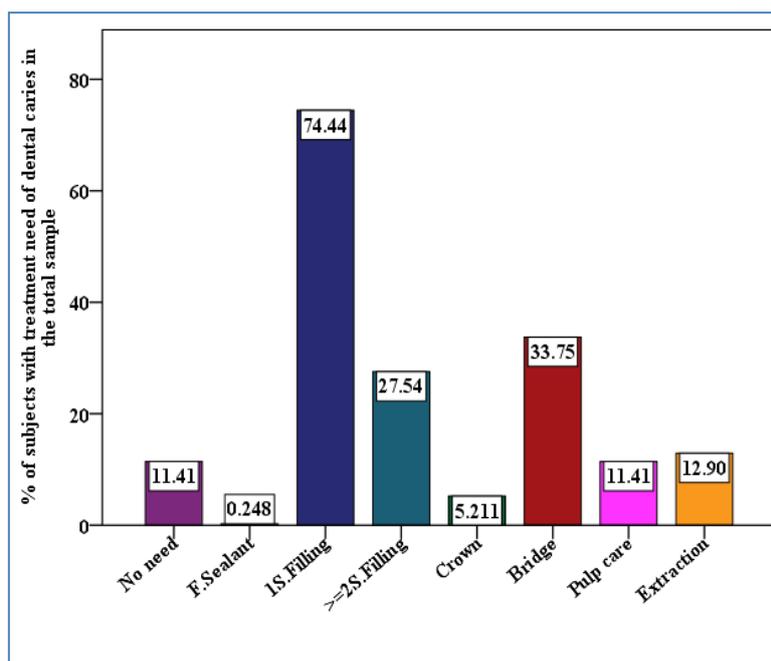


Figure 1: Percent of footballer need treatment for dental caries

DISCUSSION

This study is the first study to demonstrate the dental caries of football players in Baghdad city concerning the 403 males footballers aged range 18-32 years were randomly selected. So. In epidemiological studies, some care must be taken to ensure that the same criteria for diagnosis being applied to every individual, there is no gold standard for the diagnosis of dental caries in epidemiological studies^(15,16), therefore, an intra and inter calibration was conducted for suitable personal training and achieving consistent between examiners and over time within each examiner. Examination was performed according to the basic method of oral health survey of the World Health Organization for the year 1997, this method ensures that data collection in a wide range of environment are comparable, it will provide a standard measurement of oral disease and base for planning and evaluation oral program. Most important determinant in caries diagnosis should be the purpose of the study. This study allowed for evaluation of severity of caries symptom⁽¹⁷⁾. Generally, there were controversy between studies which investigated caries experience as it was well known that the caries is multifactorial disease and can differ from one person to another⁽¹⁸⁾. In measuring caries one must keep in mind that only visual and to some extent tactile aid are used, the tip of the explorer may gently be used to check for loss of surface smoothness or loss of tooth structure (cavitations) and where a lesion is obviously cavitated the texture of the margin and base of the cavity can be determined. It's never acceptable to press the

explorer into surface where by the surface damage may occur⁽¹⁹⁾.

In the present study, the prevalence of caries in footballers in Baghdad city was 88.34% this finding is similar to that reported by Chantaramanee et al⁽²⁰⁾ who revealed the footballers have poor oral health level including dental caries (84%). This finding was higher than that obtained by Needleman et al⁽²¹⁾ and Abdul Kareem⁽²²⁾ This could be due to age of sample. The prevalence was found to be lower than that seen reported by Suzuki and Toyoda⁽²³⁾ who found that 27% footballers had dental caries.

The current study revealed increased percent of caries experience when education level was increased. This finding is inconsistent with the results of Gomes et al⁽²⁴⁾, and Heima et al⁽²⁵⁾ who demonstrate the educational level had a direct influence on both patient's knowledge and behavior regarding to the main oral diseases and dental caries. Wandera and Twa-Twa⁽²⁶⁾ reported that the prevalence of dental caries decreased as education level increased this finding was consistent with current study.

The results of present study revealed decreased percent of caries free as duration of playing increased. This finding is in agreement with study by Gay-Escoda *et al*⁽⁷⁾ which reported that duration of sport activity direct influence to oral health. The DMFS index was used for the diagnosis and recording of dentition health status that is more sensitive index for caries intensity since caries is measured in term of surface rather than teeth. In the current study dental caries

severity was determined through the number of affected teeth surfaces.

Caries experience in the present study was recorded using DMFS index. This index allow the measurement of the previous caries experience indicated by missing and filled fraction and caries at the present as recorded by a decayed fraction⁽²⁷⁾.

Decay surface fraction in the current investigation constitutes the highest proportion of the DMFS, DS index followed by MS and then FS fraction which represents the lowest one, this could be due to deficiency in dental knowledge among footballers or could be due to costly dental treatment or inadequate dental devices^(28,29). This result was higher than that reported by previous studies⁽³⁰⁻³²⁾ while lower than others^(33,34).

This finding indicates that the studied sample did not received an optimal dental care, in addition to the poor dental health knowledge that made them preferred tooth extraction rather than restoration. This agrees with the findings of other studies⁽³⁵⁾.

Although the DMFS, MS and FS value was significant difference in the current study. It was higher in the third age group, however DS value was found to be higher among first age group (18-22) years, this could be explained by the poor oral hygiene among the study group as they had higher plaque and calculus accumulation in the study group, since dental plaque plays an essential role in caries pathogenesis⁽³⁶⁾. This might be attributed to the management of dental caries that was increased by age and directed toward either missed or filled teeth. This finding disagree with De-Souza⁽³⁷⁾ that revealed the missing surface fraction was the highest proportion of DMFS index followed by DS fraction then FS.

Current study found the caries decay fraction decreased as education level increased. This agrees with Hahn et al⁽³⁸⁾ who reported decreased dental caries with increased level of education .

The current study revealed that most of footballers needed for caries treatment. mainly one surface Filling, two surface Filling followed by need to extraction, preventive care and fissure sealant among other types of dental treatment needs, These results agree with results reported by studies conducted in different countries which have shown treatment need for carious teeth .

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