

Prevalence of Dental Caries and Related Factors among Patients Attending Dental Clinics in Dentistry Department - Hilla University College, Iraq



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ABSTRACT:

Background: Dental caries is the most common dental health problem caused by bacteria that affecting the teeth of huge population worldwide. Many factors are contribute in the prevalence and evolution of caries, such as standard of living, behavior, hygiene, eating habits, social status and socio-demographic factors.

Aim: This study aimed to determine and assess the prevalence, frequency and pattern of dental caries and associated factors among patients attending the dental clinics in dentistry department - Hilla University College, Babylon, Iraq.

Method: An institution based cross-sectional study was conducted among 924 systematically selected patients attending dental clinics in Dentistry Department - Hilla University College, Babylon, Iraq from Oct./2021 to Apr./2022. The data were collected using pre-tested questionnaire form and oral examination by a qualified dental professional basic hygienic procedures were applied during an oral examination.

Results: A total of 924 patients affected with dental caries that were being more in females nearly two-thirds 578 (62.6 %) and in males nearly one-thirds 346 (37.4 %). Dental caries was lower among respondents who had good oral hygiene status, non-smokers, with blood group AB. Dental caries was higher among respondents rural than urban.

Conclusions: Prevalence of dental caries was high and found as public health problem. Socioeconomic status, educational level, and poor oral hygiene practices were associated factors for dental caries. Health promotion about oral hygiene and integration of services are supremely important for the prevention of the problem of dental caries. Smokers patients, who taking sweets, antibiotics and corticosteroids are among the higher cases.

KEYWORDS: Dental caries, Dental health, Tooth status, Dental cavities.

INTRODUCTION

Dental caries is a most common, chronic disease of microbiological origin and counted among the top ten common health conditions affecting human population. It is resulting from toothadherent cariogenic microorganisms, primarily *Streptococcus mutans*, which metabolize sugars to produce acid, demineralizing the tooth structure over time. [1, 2, 3]. It is one of the oral health problems which cause the destruction of the hard parts of a tooth by the interaction of bacteria and fermentable carbohydrates [4, 5]. No It affects hard tissue of the tooth causing demineralization and remineralization. It is a progressive disease which without proper care, can destroy a tooth but is preventable, treated and practically reversible. Dental caries is on the rise to become major public health problems worldwide, nearly 60–90% of children and about 100% of adults have dental cavities, often leading to pain [6, 7, 8]. It was reported that main reason for prevalence of dental caries attributed to lack of knowledge on the causes and preventive methods of the disease. Although the overall prevalence of dental caries decrease in developed countries, caries continues to be an important public health problem in most developing countries [9, 10]. An increasing utilization of sweet foods in the, poor tooth brushing habits, poor oral hygiene and low level of awareness are main factors that increased the levels of dental caries. In addition to this the way of life, eating habits, social status and socio-demographic factors also contribute to the development of caries. Caries can be prevented by decreasing sugar intake and brushing teeth after every meal using the appropriate techniques and regular check-ups [11, 12]. The increasing of dental caries is due to the unlimited utilization of sugary foods, poor oral care practices and inadequate oral health service applications [13, 14]. Also, dental caries is a disease with a multifactorial causes. The prevalence and incidence of dental caries in population is influenced by a number of risk factors such as

Prevalence of Dental Caries and Related Factors among Patients Attending Dental Clinics in Dentistry Department - Hilla University College, Iraq

age, sex, dietary patterns and oral hygiene habits [15, 16]. During the past twenty years, there has been a dramatic reduction in the prevalence of dental caries in children and adolescents, which has been mainly due to changes in living conditions, implementation of healthy lifestyles, effective use of fluoride, enhanced self-care practices, and establishment of preventive oral care programs [17, 18, 19]. The lower levels of health literacy are associated with a lower understanding of the importance of prevention and maintenance, and, consequently, inferior health [20]. The objective of this study was to determine and assessment of frequency and pattern of caries spread in the patients visiting the dental clinics in dentistry department - Hilla university college, Babylon, Iraq.

METHODS

The study was carried out during a period from October 2021 to April 2022 among the patients visiting dental clinics in Dentistry Department - Hilla University College, Babylon, Iraq. It composed of 940 patients (total males 346, total females 578). Hygienic oral status of the patients were examined by the dentists. Examination of caries was performed according to the basic method of oral health survey of WHO [21, 22, 23, 24]. All teeth were examined in a systematic approach starting from the last upper right molar proceeding in an orderly manner from one tooth or tooth space till the last lower right molar, only the carious teeth with cavities were recorded [25, 26, 27]. Also, the data and information regarding gender, residence and blood group of the patients, including the most important factors (dry mouth, filling, denture, smoking, taking corticosteroids, taking antibiotics, taking sweets, brushing teeth, unbalanced dietary and poor oral hygiene) were recorded. These data were collected using pre-tested questionnaire during the mouth examination. Descriptive analysis were computed, such as numerical summary measures, frequencies and proportions.

RESULTS

Generally, a total of 940 patients affected with dental caries that were being more in females nearly two-thirds 578 (62.6 %) and in males nearly one-thirds 346 (37.4 %). Dental caries was lower among respondents who had good oral hygiene status, non-smokers, with blood group AB. In addition, dental caries was higher among urban patients 799 (86.5 %) than rural patients 125 (13.5 %). The table 1 shows the distribution of the patients according to residence (urban or rural) and types of factors that affecting dental caries. The samples of patients compose of 924 participants. Urban 799 (86.5 %) and rural 125 (13.5 %), divided into 10 factors groups. The higher percentages appear in factors: filling 163 (17.6 %), taking sweets 224 (24.3 %), brushing teeth 227 (24.6 %), unbalanced dietary 135 (14.6 %) of the total sample.

The table 2 shows the distribution of the patients according to sex (male or female) and the 10 types of factors that affecting dental caries. Number of male sample is lower than the female ones. Male sample compose of 346 (37.4 %) and female sample compose of 578 (62.6 %). The higher percentages appear in the factors: filling 163 (17.6 %), taking sweets 224 (24.3 %), brushing teeth 227 (24.6 %), unbalanced dietary 135 (14.6 %) of the total sample.

The table 3 shows the distribution of the patients according to blood groups (A, B, AB or O) and the 10 types of factors that affecting dental caries. Group A sample compose of 197 (21.3%), group B sample compose of 247 (26.7%), group AB sample compose of 147 (15.9 %), and group O sample compose of 333 (36.0%) of the total sample. The lower of numbers and percentages of caries were appeared in group AB sample than the other groups that compose of 147 (15.9 %). Also, as in the results of residence and gender the higher cases in AB group were appeared with the factors: filling 23 (2.5%), taking sweets 35 (3.8%), brushing teeth 37 (4.0%), unbalanced dietary 21 (2.3%) of the total sample.

DISCUSSION

Results of this study have shown that participants have suboptimal oral health knowledge and behavior, consistent with other studies [28, 29]. Dental caries is globally the most prevalent chronic disease, practically not sparing the inhabitants of any region. Its early diagnosis is important to prevent it, make population pain free and improve oral and general health. Population have been showing increased frequency of dental caries [30, 31]. Our findings in table 2 indicating that caries frequency in females patients was higher in males than in females, this maybe because of the effect of pregnancy on the integrity of teeth. This is attributed to the irreversibility of the caries process and accumulative nature of the disease. This finding is in agreement with many studies in the developed countries [32]. The most common dental disorder was dental caries among all blood groups. Dental caries were more prevalent in blood group O, followed by B, A, and AB [33, 34, 35].

Prevalence of Dental Caries and Related Factors among Patients Attending Dental Clinics in Dentistry Department - Hilla University College, Iraq

CONCLUSIONS

This study attempted to assess the prevalence and associated factors of dental caries among patients attending the dental clinics in dentistry department - Hilla University College, Babylon, Iraq. It shows that the dental caries is a common disease affecting general population with higher frequency in urban than in rural. In addition, study showed, the prevalence of dental caries was high and found public, knowledge about dental caries, educational status, oral hygiene status, were important predictors of the prevalence of dental caries. Oral health programs should be organized to enhance awareness of improving oral hygiene so as to control and reduce dental caries occurrence. There is a need to educate people about its risk factors and instruct them proper oral hygiene and brushing technique. Lack of education and poor nutrition are among the main causes.

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Prevalence of Dental Caries and Related Factors among Patients Attending Dental Clinics in Dentistry Department - Hilla University College, Iraq

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Table 1: The effect of patient's residence on dental caries in relation to different factors.

Types of factors	Residence		Total No. (%)
	Urban	Rural	
Dry mouth	33 (84.6 %)	6 (15.4 %)	39 (4.2 %)
Filling	140 (15.2 %)	23 (2.4 %)	163 (17.6 %)
Denture	19 (2.1 %)	3 (0.3 %)	22 (2.4 %)
Smoking	28 (3.0 %)	4 (0,5 %)	32 (3.5 %)
Taking steroids	15 (1.6 %)	2 (0.2 %)	17 (1.8 %)
Taking antibiotics	33 (3.6 %)	4 (0.4 %)	37 (4.0 %)
Taking sweets	201 (21.8 %)	23 (2.5 %)	224 (24.3 %)
Brushing teeth	202 (21.9 %)	25 (2.7 %)	227 (24.6 %)
Unbalanced dietary	110 (11.9 %)	25 (2.7 %)	135 (14.6 %)
Poor oral hygiene	18 (1.9 %)	10 (1.1 %)	28 (3.0 %)
Total (%)	799 (86.5 %)	125 (13.5 %)	924 (100 %)

Prevalence of Dental Caries and Related Factors among Patients Attending Dental Clinics in Dentistry Department - Hilla University College, Iraq

Table 2: The effect of patient's gender on dental caries in relation to different factors.

Types of factors	Gender		Total (No. / %)
	Male (No. / %)	Female (No. / %)	
Dry mouth	19 (2.0 %)	20 (2.2 %)	39 (% 4.2)
Filling	55 (6.0 %)	108 (11.6 %)	163 (% 17.6)
Denture	6 (0.6 %)	16 (1.8 %)	22 (% 2.4)
Smoking	30 (3.2 %)	2 (0.3 %)	32 (% 3.5)
Taking steroids	6 (0,6 %)	11 (1.2 %)	17 (% 1.8)
Taking antibiotics	10 (1.1 %)	27 (2.9 %)	37 (% 4.0)
Taking sweet	76 (8.5 %)	148 (15.8 %)	224 (% 24.3)
Brushing teeth	77 (8.3 %)	150 (16.3 %)	227 (% 24.6)
Unbalanced dietary	50 (5.4 %)	85 (9.2 %)	135 (% 14.6)
Poor oral hygiene	17 (1.8 %)	11 (1.2 %)	28 (% 3.0)
Total	346 (37.4 %)	578 (62.6 %)	924 (% 100)

Table 3: The effect of patient's blood groups on dental caries in relation to different factors.

Types of factors	Blood groups				Total No. (%)
	A	B	AB	O	
Dry mouth	10 (1.1%)	6 (0.6%)	8 (0.9 %)	15 (1.6 %)	39 (4.2 %)
Filling	34 (3.7%)	42 (4.5%)	23 (2.5%)	64 (6.9%)	163 (17.6%)
Denture	2 (0.2%)	9 (1.0%)	3 (0.3%)	8 (0.9 %)	22 (2.4 %)
Smoking	9 (1.0%)	6 (0.6%)	10 (1.1%)	7 (0.8 %)	32 (3.5 %)
Taking steroids	5 (0.5 %)	4 (0.4 %)	3 (0.3%)	5 (0.5 %)	17 (1.8 %)
Taking antibiotics	14 (1.6%)	13 (1.4%)	6 (0.6%)	4 (0.4%)	37 (4.0 %)
Taking sweet	44 (4.8%)	61(6.6 %)	35 (3.8%)	84 (9.1%)	224 (24.3%)
Brushing teeth	45 (4.9%)	60 (6.5%)	37 (4.0%)	85 (9.1%)	227 (24.6%)
Unbalanced dietary	28 (3.0%)	34 (3.7%)	21 (2.3%)	52 (5.6%)	135 (14.6%)
Poor oral hygiene	6 (0.6%)	12 (1.3%)	1 (0.1%)	9 (1.0%)	28 (3.0%)
Total	197 (21.3%)	247 (26.7%)	147 (15.9 %)	333 (36.0%)	924 (100 %)



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