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ASSOCIATION BETWEEN DENTAL CARIES AND LIFE HABITS AMONG SCHOOL AGE CHILDREN IN IRAQ

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Abstract:

Background: Dental caries is defined as a multi-factorial chronic infectious disease. The factors involve interactions between socioeconomic factors, behavioural factors, genetic factors, proteins related to antimicrobial activity, pH control, and bacterial colonization/adhesion.

Aim: To evaluate the association between dental caries among school-aged children and the life habits of children and their parents.

Patients and method: A cross-sectional study was conducted in Baghdad during the period from the 1st of February to the 31st of May 2023. A random sample of 20 public primary schools was included. From each school, a convenient sample of 10 students was enrolled in the current study. As a result, a total of 200 students were enrolled.

Results: The prevalence of dental caries was 55%. Participants with dental caries have a higher percentage of parents who did not have a practice of daily teeth brushing. The percentages of participants with a frequency of teeth brushing of >1 day, participants who began teeth brushing at the age of 2-3 years, and participants with yearly checkup consultations were significantly lower among those with dental caries compared to others (P-value=0.001, 0.001, 0.004, respectively). The percentage of participants who did not use florid, participants who were eating at night, and those who were eating sweets more than twice per day were significantly higher among those with dental caries compared to others (P-value=0.001, 0.003, and 0.005, respectively).

Conclusion: The prevalence of dental caries was 55%, and the oral hygiene practice of the parents and children significantly impacted the prevalence of dental caries among children.

Keywords: Dental caries, Children, Iraq

INTRODUCTION

Dental caries is defined as a multi-factorial chronic infectious disease caused by plaque bacteria. When food enters the mouth, bacteria metabolize fermentable carbohydrates, producing acids, which diffuse into hard dental tissue[1, 2], this results in the phasic demineralization and remineralization of these tissues[3]. The factors involving interactions between socioeconomic factors (income, organization of primary prevention), behavioural factors (quality and amount of nutrition, dental hygiene, behavioural patterns or lifestyles), genetic factors (co-existing somatic disorders, proteins related to the antimicrobial activity (beta-defensin one and lysozyme-like protein), pH control (carbonic anhydrase), and bacterial colonization/adhesion (Lacto transferrin, mucin, and proline-rich protein[4-6].

Dental caries lead to tooth pain, discomfort, eating impairment, loss of teeth, and delayed language development in children. Furthermore, dental caries affects children's functions and body growth and imposes a financial burden on their families[7].

In childhood, dental caries is the leading oral disease[1, 4] The World Health Organization and Federation Dentaire International established the first global oral health goal, as follows: by the year 2000, children reaching the age of 12 will not possess an average of more than three decayed, missing, and filled permanent teeth. During the following decades, most high-income countries reached or even exceeded these goals, but for many low-income countries, this remains a remote aspiration[1]. The World Health Organization reported that dental caries affects around 60–90% of children at school age, which negatively affects the quality of life of children and their families[8].

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Oral health is an important component of general health, and creating supportive oral health-related environments in schools is an important strategy for promoting schoolchildren's oral health and preventing dental caries[9, 10]. The family provides the child's proximate home environment that promotes certain oral health-related behaviours, expectations, beliefs and social norms[11]. Parental oral health behaviours may have a significant impact on the development of their children's oral hygiene habits and, consequently, on the prevalence of oral diseases, children's tooth brushing, and dietary habits (high sugar diet, feeding practices, and nocturnal breastfeeding)[12].

The current study aimed to evaluate the association between dental caries among primary school-aged children and the life habits of children and their parents

PATIENTS AND METHOD

A cross-sectional study was conducted in Baghdad during the period from the 1st of February to the 31st of May 2023. A random sample of 20 public primary schools was included. From each school, a convenient sample of 10 students was enrolled in the current study. As a result, a total of 200 students wt were enrolled. All school-aged children were included in the study except those who did not have parental consent.

The dental examination was performed using a WHO periodontal probe under natural light and a standard size-4 mirror and followed the WHO recommendations for oral health surveys.

Ethical consideration: Parents of primary school children were invited to fill out an anamnestic questionnaire aimed to investigate the life, eating, and oral hygiene habits of both parents and children. Parents were asked to sign a release to consent to dental examinations and participation in the study.
Statistical analysis:

RESULTS

A total of 200 participants were enrolled in the current study, males constituted more than half of the sample (55%) and 61% were aged 9-12 years (Table 1).

Table 1: Distribution of the participants according to age and gender

Age and gender		N (%)
Age group (years)	6-8	78 (39.0)
	9-12	122 (61.0)
Gender	Male	110 (55.0)
	Female	90 (45.0)

The prevalence of dental caries was 55%, while35 of the participants did not have dental caries, as shown in figure 1

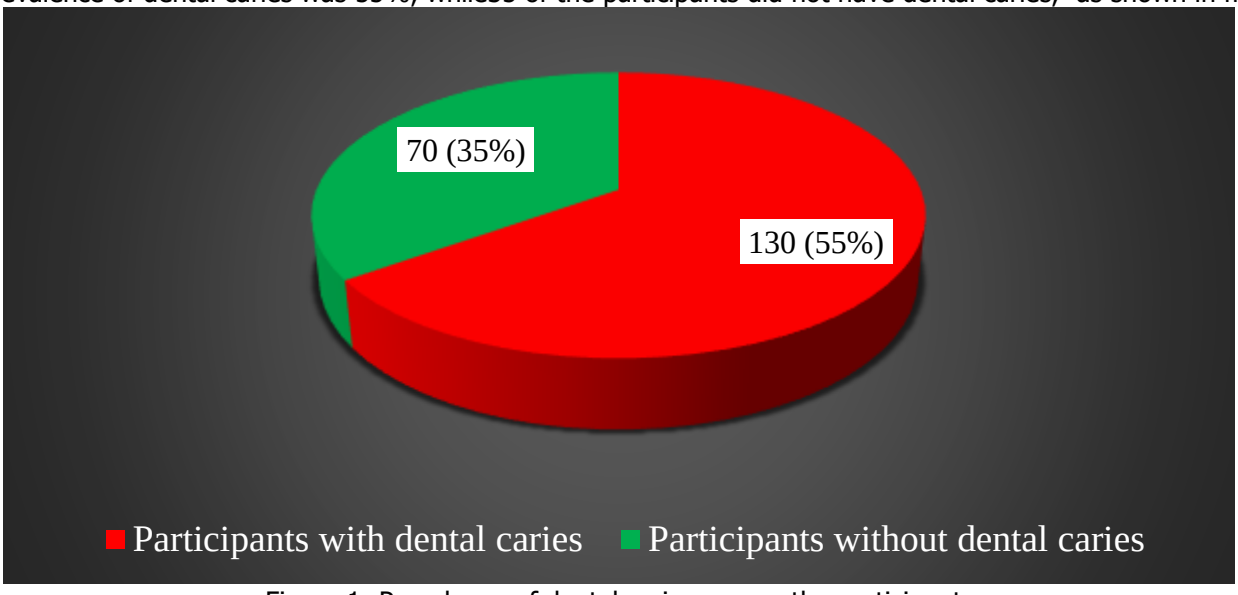

Figure 1: Prevalence of dental caries among the participants

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There was no significant difference between the prevalence of dental caries and the age and gender of the participants (Table 2)

Table 2: Distribution of the age and gender according to the prevalence of the dental caries

Age and gender		**Dental caries**		
		Yes (N=130) N (%)	No (N=70) N (%)	P-value
Age group (years)	6-8	54 (41.5)	24 (34.3)	0.316
	9-12	76 (58.8)	46 (65.7)	
Gender	Male	68 (52.3)	42 (60.0)	0.297
	Female	62 (47.7)	28 (40.0)	

There was a significant difference between the prevalence of dental caries and the practice of the parents regarding teeth brushing, participants with dental caries have a higher percentage of parents who did not have a practice of daily teeth brushing as shown in table 3.

Table 3: Distribution of the parent's habits according to the prevalence of the dental care

Parents habits		**Dental caries**		
		Yes (N=130) N (%)	No (N=70) N (%)	P-value
Father daily brushing	Yes	80 (61.5)	55 (78.6)	**0.014**
	No	50 (38.5)	15 (21.4)	
Mother daily brushing	Yes	95 (73.1)	61 (87.1)	**0.022**
	No	35 (26.9)	9 (12.9))	
Father annual dental visit	Yes	7 (5.4)	5 (7.1)	0.618
	No	123 (94.6)	65 (92.9)	
Mother annual dental visit	Yes	18 (13.8)	9 (12.9)	0.845
	No	112 (86.2)	61 (87.1)	

The percentages of participants with a frequency of teeth brushing of >1 day, participants who began teeth brushing at the age of 2-3 years, and participants with yearly checkup consultations were significantly lower among those with dental caries compared to others (P-value=0.001, 0.001, 0.004, respectively). The percentage of participants who did not use florid, participants who were eating at night, and those who were eating sweets more than twice per day were significantly higher among those with dental caries compared to others (P-value=0.001, 0.003, and 0.005, respectively). As shown in table 4.

Table 4: Distribution of the child habits according to the prevalence of the dental caries

Participants habits		**Dental caries**		
		Yes (N=130) N (%)	No (N=70) N (%)	P-value
Frequency of brushing/day	<1	60 (46.2)	12 (17.1)	**0.001**
	1	46 (35.4)	25 (35.7)	
	>1	24 (18.5)	33 (47.1)	
Age at starting brushing	2-3 years	38 (29.2)	39 (55.7)	**0.001**
	4-5 years	24 (18.5)	18 (25.7)	
	>5 years	68 (52.3)	13 (18.6)	
Frequency of fluoride application/year	None	112 (86.2)	41 (58.6)	**0.001**
	Once	11 (8.5)	23 (32.9)	
	Twice	7 (5.4)	6 (8.6)	
Checkup consultation	Yes	24 (18.5)	26 (37.1)	**0.004**
	No	106 (81.5)	44 (62.9)	

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Eat at night	Yes	82 (63.1)	29 (41.4)	**0.003**
	No	48 (36.9)	41 (58.6)	
Consumption of sweet foods/day	≤once	62 (47.7)	48 (68.6)	**0.005**
	≥ Twice	68 (52.3)	22 (314)	

DISCUSSION

Dental caries are a global public health problem and influence the overall health of children[13]. This study was one among others that tried to assess the main factors that could affect the prevalence of dental caries among children in Iraq.

The prevalence of dental caries in the current study was 55%. In another study that was done in Iraq, Basra Governorate, the prevalence of dental caries among children was 41.2%[14]. In comparison, the prevalence of dental caries in Saudi Arabia was estimated to be approximately 70% among children[15]. In Egypt, 74% of the children had dental caries as revealed in the study that was done there by Marwa et al[16]. In Iran, according to several studies, the prevalence of dental caries among children compared with the developed countries was high[7]. The difference between different studies might be related to differences in child habits, health facilities, habits and awareness of the parents in addition to other factors.

In the current study, the was no significant association between gender and the prevalence of dental caries. In comparison, the same results were obtained in another study that was done by Wondemagegn et al. in Ethiopia[17].

The current study revealed that oral hygiene habits including the daily teeth brushing of the parents significantly affect the prevalence of dental caries in their children. In comparison, the same results were obtained in another study that was done by Morenike et al. in Nigeria[18]. This agrees with the results of another study that was done by Yazeed et al. in Saudi Arabia[19]. In the United Arab Emirates, the same results were obtained in a study that was done there by Amal et a.[13].

The habit of the children including Frequency of brushing/day, age at starting brushing, frequency of fluoride application/year, eating at night, and consumption of sweet foods/day significantly impacted the prevalence of dental caries. In agreement, the same results were obtained in another study that was done by Yazeed et al. in Saudi Arabia[19]. The same results were obtained in another study that was done by Amal et al. in the United Arab Emirates[13]. In the same line, the same results were by Wondemagegn et al. in Ethiopia[17].

In conclusion, the prevalence of dental caries was 55%, and the oral hygiene practice of the parents and children significantly impacted the prevalence of dental caries among children.

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