

Dental caries among kindergarten children in relation to socioeconomic status in Al-Najaf governorate-Iraq

Suha M. Shubber, B.D.S. ⁽¹⁾

Wesal A. Al-Obaidi, B.D.S., M.Sc. ⁽²⁾

ABSTRACT

Background: Dental caries is the most common oral problem, although dental caries is not life threatening, it has a harmful effect on quality of life. Socioeconomic factors were found to be strong predictors of the prevalence of oral diseases in children, like family income, occupational prestige, and education. The aim of this study is to assess the effect of socioeconomic factors on occurrence dental caries in their children.

Materials and methods: The sample consists of 550 kindergartens children aged between (4-5) years were selected randomly, girls and boys. The kindergartens selection was randomly from different geographical areas in Al-Najaf governorate. Information was taken from children's parents using questionnaire with the help of the kindergartens managers. Examination of dental caries severity was performed according to the World Health Organization (1987). Children were examined in a suitable room in their school. Day light was used for illumination.

Results: High caries prevalence was recorded (84.7%); females had higher caries prevalence as compared to males. Mean dmfs was (10.05±0.40) and ds value was the highest component. Age differences were recorded for both indicators with no gender differences. Secondary and high schools are the highest percentage of the education of the child's parents and the differences were not significant regarding dental caries between parent factors.

Conclusion: Children in this study were in need of preventive programs that are 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.

Key words: Dental caries, children, socioeconomic status. (J Bagh Coll Dentistry 2015; 27(3):165-168)

INTRODUCTION

Dental caries is a localized, progressive destructive, largely irreversible microbial based disease, affecting the calcified tissue of the teeth characterized by dissolving in the tooth minerals demineralization and destruction of the organic portion leading to tooth cavitation ⁽¹⁾. It may start early and if not treated progression to tooth loss could be suspected ⁽²⁾.

Dental caries considered as a multifactorial disease depending on interaction of several factors, oral microflora, diet, host and time ⁽³⁾. Associations between socioeconomic status (SES) and health are so pervasive that some have designated SES as a fundamental cause of health and illness includes dental caries ⁽⁴⁾.

It is widely acknowledged that the behavior of parents, particularly mothers, affects their children's health ^(5,6), because they are the main caregivers of oral health to their children during the first three years of life, even in preschool; parents are still the main supplier of children's oral health ⁽⁷⁾. Some factors such as maternal education, occupation, age, current knowledge, attitude, and behavior can provide insight for improving their health habits and their children's health indirectly ⁽⁸⁾.

MATERIALS AND METHODS

This oral health survey was conducted among kindergartens children aged between (4-5) years living in center and township areas in Al-Najaf governorate, Iraq. The kindergartens selection was randomly from different geographical areas in Al-Najaf governorate.

Al-Najaf city was divided into three sectors, these sectors are: Al-Najaf, Al-Kufa and Al-Manathera. Prior to oral examinations, the following information regarding SES was taken from the parents of the children using questionnaire, the information include:

1. Parent's education was divided into 4 levels:
 - Score 1: illiterate (neither read nor writes).
 - Score 2: who finished primary schools.
 - Score 3: who finished secondary and high schools.
 - Score 4: who finished college and beyond college organization (Diploma, MSc, Ph.D.).
2. Job of the mother, the criteria was divided into two categories:
 - Score 1: house keeper.
 - Score 2: worker.
3. Age of the mother
4. If mother and/or the father alive it was divided into four categories:
 - Score 1: mother and father alive.
 - Score 2: mother alive and father dead.
 - Score 3: mother dead and father alive.
 - Score 4: mother and father dead.

(1)Master Student. Department of Pedodontics and Preventive Dentistry, College of Dentistry, University of Baghdad

(2)Professor, Department of Pedodontics and Preventive Dentistry, College of Dentistry, University of Baghdad.

Clinical examinations were performed using plane mouth dental mirrors and explorers. Examinations included all surfaces of teeth. A tooth was considered to be present when any part of the tooth was visible. An alphabetical coding system was applied for primary, (WHO, 1987).

Cariou lesions were recorded for all surfaces of the teeth involved. Missing teeth were counted as five surfaces for posterior and four surfaces for anterior teeth. Retained roots were counted as a five decayed surfaces for posterior and four decayed surfaces for anterior teeth.

Temporary crowns were recorded as five decayed surfaces for posterior and four decayed surfaces for anterior teeth. Data entering and analysis were performed using statistical package

for social science SPSS for windows statistical software package version 19.0. The statistical tests which were used are: Student t-test and ANOVA test.

RESULTS

The distribution of the total sample by age and gender, were show in Table (1). This table shows that the number of four years is more than five years and the numbers of females are slightly more than males. Table (2) illustrates caries-severity in deciduous teeth (dmfs) among children. Females were found to have higher dmfs mean value than males; this difference was found to be statistically not significant at P< 0.05.

Table 1: Distribution of kindergartens children by age and gender

Age/years	Males		Females		Total	
	No.	%	No.	%	No.	%
4	144	49.3	148	50.7	292	53.1
5	126	48.8	132	51.2	258	46.9
Total	270	49.1	280	50.9	550	100.0

Table 2: Dental caries severity (dmfs) by gender

Age	Sex	No.	dmfs Mean ± SE	Student's t-test	p
4 years	Males	144	8.83 0.71	0.34	0.74
	Females	148	9.18 0.74		
5years	Males	126	10.99 0.88	0.37	0.71
	Females	132	11.45 0.86		
Total	Males	270	9.84 0.56	0.51	0.61
	Females	280	10.25 0.57		

Table (3) shows caries-severity of deciduous teeth among the total sample. Five years children were found to have higher dmfs mean value than four year old children, this difference was found to be statistically highly significant at P< 0.01. Table (4) illustrates the dental caries among different levels of fathers and mothers education.

The difference was found to be statistically not significant at P< 0.05 and mother education has great effect on caries prevalence which is gradually decrease when the level of the mother education increase, but this difference is statically not significant at P<0.05.

Table 3: Dental caries severity (dmfs) by age

Age	No.	dmfs Mean ± SE	Student's t-test	P
4 years	292	9.01 0.51	2.79**	0.005
5 years	258	11.23 0.61		
Total	550	10.05 0.40		

**highly significant, df=548

Table 4: Dental caries in relation to parent education

edu.	Father				Mother		
	%	dmfs Mean ± SE	test	%	dmfs Mean ± SE	test	
1	5.1	9.71 1.72	F=1.14 P=0.33 df= 3	6.9	11.08 1.60	F=0.90 P=0.44 df= 3	
2	24.0	10.68 0.81		29.1	10.33 0.70		
3	41.3	10.51 0.65		43.6	10.27 0.63		
4	29.6	8.95 0.69		20.4	8.81 0.85		

Table (5) represents that the severity of dental caries is high with housekeeper compared to clerk women which is statistically not significant at $P < 0.05$. Table (6) shows that although the difference was not significant at $P < 0.05$ the severity of the dental caries increase when the age

of the mother increase. Table (7) represents the effect of the presence of both parents will cause the severity of dental caries become less from the case when only the mother alive, but statistically not significant at $P < 0.05$.

Table 5: Dental caries in relation to mother's employment

Mother's employ	%	dmfs Mean \pm SE	Student's t-test	P
housewife	81.1	10.36 0.45	1.61	0.11
clerk	18.9	8.72 0.84		

Table 6: Dental caries in relation to mother age

Mother's Age	%	dmfs Mean \pm SE	Test
(16-25)	22.0	9.35 0.72	F= 0.84 P= 0.47 df= 3
(26-35)	51.5	9.86 0.56	
(36-45)	23.8	11.12 0.90	
(46-55)	2.7	9.76 2.21	

Table 7: Dental caries in relation to parent alive

Parent alive	%	dmfs Mean \pm SE	Student's t-test	P
Both	98.5	10.02 0.40	0.56	0.58
Father dead only	1.5	11.88 4.02		

DISCUSSION

The prevalence of dental caries was found to be (84.7%) for kindergarten children. This percentage was higher than that reported by many studies^(9,10) while this percentage was lower than that reported by some studies^(11,12) as well as the mean dmfs value was (10.05 \pm 0.40) which was higher than that recorded by some studies^(13, 14), while was lower than that recorded by other studies^(11, 12).

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⁽¹⁵⁾, and may also related to other factors related to the socioeconomic condition, living style of the families, dietary habits, oral hygiene measurements as well as dental health services. Females had higher caries-experience (dmfs) than males with no significant difference present between them; this result is similar to that recorded by some studies^(9,16). This finding may be attributed to the earlier eruption of deciduous teeth in females than males of the same age group, therefore, female's teeth will expose to environmental factors more than males, thus increasing risk for dental caries⁽¹⁷⁾ while this finding disagreement with other studies^(18,19).

In this study, no significant differential caries among different levels of education this because

the education concerns general knowledge not restricts only for oral health so the high educational level parents have less effect by oral disease. This result agrees with this study⁽²⁰⁾; and agrees with Ojofeitimi et al study⁽²¹⁾ who stated that caries in developed countries had become most prevalent in low socioeconomic groups while in developing countries it's started as a problem mainly in those high economic states. The mean dmfs of children of housekeeper mothers was higher than that among children of clerk mothers; this result which disagrees with Al-Obaidi study⁽²⁰⁾ may be due to decrease knowledge and attitude especially for the housekeeper mothers in which there is strong positive correlation between the mother employment and education, and most of mothers in this study were housekeeper (81.1%), but it's not significant because the housekeeper mothers have enough time to take care of their children while the clerk mothers haven't. Moreover, children at this age group had not yet developed the knowledge and experience to choose food. Knowledge, attitude and behavior about dental health were superficial and depend on their parent's especially the mother and the mother can prevent dental caries in children by providing a healthy diet, minimizing the consumption of sweets and getting early examination⁽²²⁾.

Also the result showed that there was no significant difference in dental caries among different mother's age but because of illness and heavy problem of live, the children of older age mostly affected by oral disease and half of mothers were in median age (26-35) years. In this study, all the mothers were alive and the fathers dead in some cases about (1.5%), the differences was not significant with the dental caries in spite of this dental caries was higher in the children whom lost their father and only the mother alive, this may be due to the effect of the presence of the parent together to take care of their children better than the presence of the mother alone which is not enough. Dental care professionals accept that efforts aimed at improving parental oral health behaviors could result in reductions in caries risk among their children⁽²³⁾.

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