Prevalence of dental discoloration among 5-44 years population in Sharkhan village, Nineveh Governorate, Mosul, Iraq

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ABSTRACT

The aims of this study are to determine the prevalence of dental discoloration in the rural area and to identify, if there is any variation between sex and age group in a sample of (114) subjects aged (5-44) years. The sample was divided into four age group (5-14), (15-24), (25-34) and (35-44) years. The results revealed high percentage of teeth discoloration in all age groups & it was particularly due to natural or acquired cause and there were no differences between the age groups or sex. Also, the result of this research showed that about (82%) of the total sample are with discoloration defect in their teeth.

Key Words: Discoloration, rural area.

الخلاصة

إن الهدف من هذه الدراسة هو لمعرفة مدى انتشار تلون الأسنان فــي المنــاطق الريفيــة ولمعرفة إذا كان هناك اختلافات في تلون الأسنان ما بين الفئات العمرية والجنـس. تــم فحــص (١١٤) شخص تتراوح أعمارهم ما بين (٥ – ٤٤) سنة. وقد قسمت إلى أربعة فئات عمرية هي (٥-١٤) و (١٥-٢٤) و (٢٥-٣٤) و (٣٥-٤٤) سنة. النتائج أظهرت وجود نسبة عاليــة مــن تلون الأسنان في جميع الفئات العمرية وكان معظمها نتيجة لأسباب مكتسبة كذلك لم يظهر هنـاك فرق معنوي ما بين الفئات العمرية والجنس.

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INTRODUCTION

Today many people are undergoing tooth whitening. However, there are different factors may actively affect the cosmetic appearance of human being, discoloration of the teeth is one of them particularly when discoloration involve anterior teeth which might be significant enough to force the individual seek a dental treatment.

The dentist cannot predict the results of treating such problem; neither help the patient about his request unless he or she is able to diagnose the cause and the origin of such defect. Because teeth are most commonly stained by age, caffeine, and tobacco, hereditary, severe jaundice, root canal treatment, traumas to the tooth, fluorosis, and certain medicaments (like tetracycline) can also darken teeth.

In our country, there is no water fluoridation program, therefore prevalence of dental fluorosis is relatively low in urban, meanwhile in the rural areas where the possibility of consumption of water from wells or boreholes is more likely to occur, so that fluorosis is expected as revealed by previous study conducted in rural area [1]. For practical public health purposes it has been proposed that a safe level has been reached when not more than (10-15) percent of children age (12-14) years who have used water supplies since birth, and who have been examined under standard conditions, show the mildest detectable type of mottled enamel. In addition, the low socioeconomic level, lack of education dietary habits in rural area, might significantly participate in increasing the chance of developing teeth discoloration.

Studies conducted in developing countries have reported a relationship between socioeconomic status and oral health [1,2,3,4,5].

There are two studies about the prevalence of tooth stain in Baghdad City [6,7] they found high percentage of discoloration particularly in males; also they found that DMFS value correlated with the type of stain, and better gingival health in patients without stain.

An epidemologic study of discoloration prevalence is relatively few in our country particularly in rural areas, as teeth discoloration may be caused by a variety of reasons [8,9,10] however in this study the major cause of discoloration were recorded.

The aims of this study are: To evaluate the discoloration experience in the rural community population in Ninavah government, to determine prevalence and severity among them, and to compare this prevalence according age group and sex.

MATERIALS AND METHODS

One hundred fourteen subjects aged (5-44) years were selected randomly form the Sharkhan village, which is located few kilometers north of Mosul city.

Each subject was examined under daylight using mirror and probe. The following information was recorded in the case sheet, which includes three main causes of the discoloration natural or acquired stain, developmental defects and iatrogenic or inflicted cause.

The natural or acquired cause was estimated from the following intrapulpal hemorrhage, pulp necrosis, calcific metamorphosis, aging and habits due to (tea, coffee or smoking).

The developmental defects involve the following endemic fluorosis, systemic drugs, hypocalcification, enamel hypoplasia and blood dyscrasias.

The iatrogenic or inflicted stain involve the following endodontic related stains (obturating materials, remainent of pulpal tissue and intracanal medicaments), coronal restoration (metalic or composite).

In addition to these informations, name, age and sex were registrated.

The statistical analysis of the data includes.
1. Classification of data and calculate of frequencies.
2. Differences between age groups & sex were tested statistically by means of Chi sequare test at (0.05) level of significance.

Throughout the examination the Iatrogenic or inflicted type of discoloration was not observed therefore this cause was neglected from statistical analysis.

RESULTS

There were (114) subjects aged (5-44) years comprising (50%) male and (50%) female, these population were divided into four age group. The highest percentage of the samples was (38.59%) at (5-14) year, while the lowest percentage of samples was (16.66%) at (25-34) as shown in table (1).

Table (2) reveals the number and percentage of the subjects exhibited discoloration according to the cause in each age group and sex.

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Table (1): Number and percentage distribution of the examined sample by age and sex

Age	Male		Female		Total	
	No.	%	No.	%	No.	%
5-14	26	22.8	18	15.78	44	38.59
15-24	18	15.78	9	7.89	27	23.68
25-34	7	6.14	12	10.52	19	16.66
35-44	6	5.26	18	15.78	24	21.05
Total	57	50	57	50	114	100%

Table (2): Number and percentage of the examined individual according to the causes of discoloration by age and sex

Age	Sex	No.	No. Discoloration	%	Natural or Acquired	%	Developmental Defect	%	Total
5-14	M	26	2	7.7	18	69.2	6	23.0	100
	F	18	4	22.2	13	72.2	1	5.5	100
	Total	44	6	13.6	31	70.4	7	15.9	100
15-24	M	18	5	27.7	12	66.6	1	5.5	100
	F	9	5	55.5	4	44.4	0	0	100
	Total	27	10	37.0	16	59.2	1	3.7	100
25-34	M	7	1	14.2	6	85.7	0	0	100
	F	12	1	8.3	6	50.0	5	41.6	100
	Total	19	2	10.5	12	63.1	5	26.3	100
35-44	M	6	0	0	6	100	0	0	100
	F	18	2	11.11	13	72.2	3	16.6	100
	Total	24	2	8.3	19	79.1	3	12.5	100
Total		114	20	17.5	78	68.4	16	14.0	

The natural or acquired stains were greater in all age groups ?68.4%? than developmental defect (14.0%) and it was higher level (79.1%) at (35-44) age group. Developmental defect was highest (26.3%) at (25-34) age groups. But (15-24) year age group has the lowest percentage (3.7%) of affected subjects and while reported the highest percentage of color free (37.0%). In addition the study reveals that only (17.5%) of total samples was not affected by discoloration. Meanwhile more than (82%) of the examined subjects showing some kind of discoloration.

The results of the statistical analysis indicated that there is no significant difference among all the age groups as well as between two causes of discoloration. Table (3).

Table (4) demonstrated that there was no difference between the male and female in any of the four age groups and between the total sex regardless of age group.

Table (3): Number and percentage correlation of the affected subjects by age group

Age	Natural or Acquired	%	Developmental Defect	%	Total
5-14	31	70.4	7	15.9	86.3*
15-24	16	59.2	1	3.7	62.9*
25-34	12	63.1	5	26.3	89.4*
35-44	19	75.0	3	12.5	87.5*
Total	78	67.5**	16	14.0**	82.4

* No Significant difference between the age group using X2 at 0.05.
** No Significant difference between the two causes using X2 at 0.05.

Table (4): Difference between the affected individual by discoloration according to sex

Age	Male	Female	X^2	p - Value
5-14	24*	14*	0.876	< 0.05
15-24	13*	4*	0.413	< 0.05
25-34	6*	11*	0.984	< 0.05
35-44	6*	16*	0.197	< 0.05
Total	49*	45*	0.213	< 0.05

* No Significant difference between sex at 0.05 level using X^2

DISCUSSION

The results of this study revealed that there was a variation in the discoloration among different age group. However, the smaller age (5-14) represents the highest (38.59%) while (25-34) years age group reported the lowest (16.66%). This is probably because most of the individuals at this age were out of the home during the morning period of the day.

The low percentage of the individuals that did not have any type of discoloration in comparison to the high percentage of the acquired stain (68.4%) and (14.0%) of the developmental defects indicated that the rural area has very low dental health education. However the dental and the medical education programs play important role in the motivation of the people about brushing and care of their teeth. The result indicated that the rural areas exhibited low interest about dental health particularly regarding their cosmetic appearance

The results of this study was in agreement with the other studies [4,11] which found high percentage of population of rural area (Sharkhan and Humidat) villages not attending dental clinic in spite of large number of them had carious defect.

This may be attributed the fact that high social class had a higher level of education and more knowledge about dental health. They perform more regular oral hygiene measure and more regular in their dental visit for professional cleaning and other preventive measure [12].

All age groups expressed similar rate of discoloration. In spite of that, (15-24) year age group shows lowest percentage (62.9 %) particularly females that may be because at this age group female pay more attention to their external appearance and perform a regular oral hygiene measure.

Therefore this study showed that discoloration treatment needs were massive in four age groups, as the disease was prevalent although with no statistical significance difference between four age groups.

Throughout the examination, the inflicted or iatrogenic stain has not been recorded neither as a result of coronal nor endodontic restoration which indirectly revealed the limited numbers of subjects who visits dental clinic and perform a restoration of their teeth.

Regarding sex variation, this study revealed no difference between males and females at different age group. Also there was no difference between total sexes which reflected low concern of the individuals about their appearance although it was expected that females less susceptible to develop stain in comparison with males, the result was disagreement with that showed male showing higher dental stain than females [6] and with who revealed that females showing greater dental stain than males [13]; but in agreement with who found no sex difference [7].

In this study the absence of sex variation might be due to the fact that both sexes are living in the same small-restricted village and exercise the same dietary habits and consume same water source.

The percentage of the natural or acquired stain represents (68.4%) mostly due to the habits cause (smoking, tea or coffee) while the developmental cause (14.0%), but without statistical difference may be attributed to limited number of samples. Also, in this study only three cases of has fluorosis been recorded which is in contrast to the other study conducted is proven area which revealed high prevalence of dental fluorosis [1].

From the finding of this study it was concluded that discoloration is a prevalent problem in rural areas particularly as a result of bad oral hygiene hence the priority of treatment should be given to the more common causes of discoloration.

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