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## **Gingival recession at dental college hospital Al- Mustansiriya University; prevalence and effect of some associated factors.**

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### **Abstract**

The present study was conducted to investigate the occurrence of gingival recession in adults by age and gender in relation to their dental clinic attendance and frequency of tooth brushing. The sample of the study included adult subjects aged (30-69) years who attended Al-Mustansiriya dental college hospital seeking for different types of treatment. A total of (745) dentate subjects (390 males 52.3%) and (355 females 47.6%) were involved in the study. According to age, the sample was divided into four age groups (30-39, 40-49, 50-59 and 60-69). The study revealed that (57.18%) of the total subjects had at least one tooth surface with gingival recession. Recession was found in (63.07%) of males, and decreased significantly in females to (50.7%). The study showed that mean number of teeth with gingival recession per person for males was (7.7) teeth and (5.72) teeth for females. The mean number of teeth with gingival recession per person was (2.05) teeth for age group (30-39) years and increased significantly to (12.48) teeth for age group (50-59). The study also demonstrated that mean number of surfaces with gingival recession per person was (7.22) for age group (30-39) years and increased significantly with age to (30.14) teeth for age group (50-59) years. The total males reported higher mean surfaces than females (19.91) and (15.32) respectively. The results of the study revealed that the frequency of tooth brushing has a positive effect on the prevalence of gingival recession; while regarding the relation of dental clinic attendance, the subjects who attend the dental clinics regularly and irregularly had similar occurrence of gingival recession.

**Key words: Gingival recession prevalence, Dental attendance, Tooth brushing.**

### **Introduction**

Gingival recession is an apical shift in the position of the gingiva and exposure of the root surface. Recession may be localized to one tooth or a group of teeth, or it may be generalized throughout the mouth<sup>(1)</sup>.

The proportion of subjects with gingival recession increases with age<sup>(2-7)</sup>; the incidence varies from 8 % in children to 100% after the age of 50 years<sup>(8)</sup>. This has led some

investigators to assume that recession may be a physiologic process related to aging. However, convincing evidence for a physiologic shift of the gingival attachment has never been presented<sup>(9)</sup>. The gradual apical shift is most probably the result of the cumulative effect of minor pathologic involvement and/or repeated minor direct trauma to the gingiva, but in some population without access to dental care, recession may be the result of increasing periodontal disease<sup>(10)</sup>.

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Although tooth brushing is important for gingival health, faulty tooth brushing with hard bristles may be the cause of gingival recession<sup>(11, 12)</sup>. Gingival recession tends to be commonly occurred in subjects with a good standard of oral hygiene<sup>(13, 14)</sup>.

Recession also may be associated with individuals complaining of malocclusion or malaligned teeth<sup>(15)</sup>.

Many epidemiological studies have shown that the gingival recession had a great variety in prevalence values, and beside this, most of the studies have not paid an enough attention to factors related to the occurrence of recession<sup>(16)</sup>.

In Oslo, Norway, (51%) of adults aged 18years and older had gingival recession, (87%) of the cases with recession reported that they brushed their teeth more frequently than once daily<sup>(17)</sup>.

In mosul city, Iraq the prevalence of gingival recession in adults was found to be increased with age from (35%- 100%) in males & (10%-100%) in females<sup>(18)</sup>. Another study revealed that (76%-87%) of middle aged subjects in Germany had gingival recession<sup>(19)</sup>. According to the national survey in USA<sup>(20)</sup>, (88%) of seniors (age 65 and over), and 50% of adults (18-64 years) have one or more sites with recession<sup>(21)</sup>.

Baelum et al. examined 170 Tanzanian adults, gingival recession was present in (15% - 40%) of surfaces examined and found more frequently in older than in younger adults<sup>(22)</sup>.

Gingival recessions are caused by many etiologic factors, which usually act in combination. Thus, all factors causing recession should be analyzed so that planning and treatment of this clinical condition may be established, for achievement of optimal outcomes<sup>(23)</sup>.

Although vigorous tooth brushing has been considered as one of some

etiological factors of gingival recession, so this study was conducted to investigate the occurrence of gingival recession in relation to age and sex and analyze it with their regularity of attendance to dental clinic and frequency of tooth brushing in adult population aged (30-69) years attending the dental college teaching hospital of Al-Mustansiriya University in Baghdad/Iraq.

## Materials and methods

A random sample of (745) adult dentate subjects who attended the dental hospital of the college of dentistry/Almustansiriya university seeking for different types of dental treatment. The range of the age of those populations was (30-69) years. They had an average of natural teeth (20.9) for males and (22.1) for females.

The clinical examination of the gingival recession was carried out in a dental chair using a standard operating light, dental explorer, (WHO) periodontal probe, and a mouth mirror. The teeth were not cleaned or scaled before examination. They were dried with wads of cotton wool, and the condition of each surface was examined. Gingival recession was recorded as present if a root surface in any aspect of the tooth was clearly visible with out retraction of the gingival tissue<sup>(24)</sup>.

Information on the frequency of tooth brushing was recorded as following:

- 1- Never
- 2- Infrequently.
- 3- Once daily.
- 4- More than once daily.

Also the participants were asked about the regularity of dental clinic attendance.

Then the analysis of this study included the following:

- Calculation of the statistical parameters: the mean and percentages.
- Analysis of data by using Chi-square test to determine the significance of differences between different age groups.
- Analysis of data by using student's t-test to determine the significance of differences between males and females.

## Results

The distribution of the sample by age and gender is shown in table (1). The sample consisted of (745) subjects, 390 (52.3%) males and 355 (47.6%) females.

The sample was divided into 4 age groups: (30-39), (40-49), (50-59) and (60-69) years.

Table (2) demonstrates the number and percentages of subjects affected by recession. The results showed that (57.18%) of the total sample had gingival recession. The older age groups, both in males and females reported the higher percentages of gingival recession than the other groups (100%), and in general the study revealed that gingival recession increased positively with progression of the age of the sample.

The percentage of males with gingival recession was (63.03%) while in females the percentage was lower than that of males (50.72%) with significant difference between them.

The number and the mean number of the teeth per subject with gingival recession are shown in table (3). The study revealed that the mean number of the teeth affected by gingival recession was (2.05) teeth for the age group (30-39) years and then increased significantly to (12.48) for the age group (50-59) and then very slight

elevation in mean value for older age group.

The total female mean number of teeth with gingival recession (5.72) teeth was less than that of males (7.70) teeth.

Table (4) shows the number and mean of the surfaces per person affected by gingival recession. The results reported that (7.22) surfaces per individual affected by gingival recession in age group (30-39) years and increase significantly to (16.05) surfaces for the age group (40-49) years and also increase significantly in age group (50-59) with very slight increase in age group (60-69) years. The males reported higher mean surfaces with gingival recession than in females, (19.9) and (15.3) surfaces respectively.

The relation between the frequency of tooth brushing and the subjects affected by gingival recession is illustrated in table (5). The results revealed that the subjects who never brush their teeth had lower percentage of individuals affected by gingival recession (36.1%) while those brush twice daily had the higher percentage (53.5).

Table (6) demonstrated the relation between the dental clinic attendance (regular or irregular visits to the dentist) and the persons with gingival recession according to the gender. The results showed that the percentage of individuals affected by gingival recession is similar in both groups irregular and regular dental attendance (55.9%) and (56.35) respectively.

This aspect of the study revealed that the females affected by gingival recession who are irregularly attending dental clinics are less than males (49.28% for females and 60.73 % for males).

The results in (regular) dental clinic attendance indicated also a higher percentage of males with gingival

recession than that of females (57.6% and 55.5% respectively) but the difference is non significant.

## Discussion

Gingival recession is an important problem that affects almost older adults and adults to some degrees. These problems occurred as a result of exposure of the root surface which causes impairment of esthetics, increase of hypersensitivity and it has been implicated by several studies as an important risk factor for the development of root caries<sup>(4, 11, and 25)</sup>. Dentists should be knowledgeable about the etiology, prevalence and associating factors of gingival recession, as well as treatment options, so that appropriate treatment modalities can be offered to patients.

The results of the present study showed that the number and percentage of the subjects affected by gingival recession for both sexes increased positively with the progression of the age. It affected approximately one third of the sample at the age group (30-39) years and the percentage increased significantly till reached (100%) for the age group (60-69) years. This finding is in agreement with many of other studies<sup>(3, 16, 18, 26, and 27)</sup>.

This could be explained by the fact that the older people are exposed to the causative factors of recession for longer time than younger people. The prevalence of gingival recession in the total sample was (57.18%) and this result has a considerable similarity with other studies<sup>(6, 28)</sup>. The females in young age group (30-39) years and for the total sample reported lower significant occurrence of gingival recession than males. This finding is in accordance with the study of Hosanguan et. al.<sup>(2)</sup> and Susin.et. al.<sup>(7)</sup>, while disagreed with other studies in

which the results revealed that the prevalence of gingival recession is similar in males and females<sup>(29, 30)</sup>.

The study also showed that the mean number of the teeth affected by gingival recession per person was (2.05) teeth at age group of (30-39) years and increased significantly to (5.91) teeth at age group of (40-49) years, then reached about half the dentition at age (50) years and over. The females in the total sample reported less mean (5.72) teeth than males (7.7) teeth, these results were corresponding to the findings of Khocht et. al.<sup>(3)</sup>.

The mean number of surfaces affected by gingival recession per person had the same trend of teeth affected. The mean number was (7.22) surfaces for the age group (30-39) years and reached to more than (30) surfaces for the age of (50) years and above. Also the females reported lower mean (15.32) surfaces than males (19.91).

The mean number of teeth and surfaces with gingival recession per person reflected similar results of the subjects affected by gingival recession for both sexes which increased significantly with the progression of the age and this finding agreed with the study of Vekolohti<sup>(16)</sup>.

The relation between the frequency of tooth brushing and the occurrence of the gingival recession indicated that the subjects who never brush their teeth and those brush infrequently had percentages of gingival recession (36.11%) and (44.39%) respectively, which were lower than those brush once and twice or more daily (50.19% and 53.5%), these results confirm the findings of studies of Dapile. et. al.<sup>(13)</sup> and Al-Shaikhani, Talabani<sup>(26)</sup>.

Carlos et. al.<sup>(31)</sup> found that the dental students with a high standard of oral hygiene have occurrence of gingival recession more than other

students. This relation between tooth brushing and the gingival recession can be explained by the idea that the subjects brush their teeth incorrectly with a wrong method, or they may apply too much pressure during brushing or using a firm toothbrush bristles, all these factors exert harmful mechanical friction pushing the gingival margin apically.

The study has not investigated the hardness of the tooth brush neither were the type of the dentifrice used or the technique of the tooth brushing carried out and the duration of the tooth brushing. However, the effect of each aspect of tooth brushing is surely stronger the more frequently this causal factor occurs. Thus, the frequency of tooth brushing can reasonably be considered to describe the effects caused by tooth brushing on teeth and gingival tissue<sup>(16)</sup>.

According to the findings of the present study which showed that the frequency of tooth brushing has a positive relation with gingival recession, therefore, intensive care and instruction about proper harmless brushing technique, type of tooth brush and dentifrice used all these should be given to the public to reduce the complications as sensitivity, esthetic problems and root caries initiation.

According to the relation of the gingival recession with dental clinic attendance, the results of the present study revealed that the occurrence of the gingival recession is similar in both groups who attend the dental clinics regularly and irregularly and this finding confirms that of Susin et. al.<sup>(7)</sup>.

This result means that regular dental attendance did not reduce the occurrence of gingival recession and this is because the types of treatment achieved are limited and depend mostly on relieving pain with out giving much attention to the preventive and prophylactic procedures like

scaling & polishing or giving information, instructions about keeping good oral hygiene.<sup>(32)</sup>

In irregular dental attendance, the females affected by gingival recession recorded lower percentage than males (49.28%) and (60.73%) respectively, the difference was significant. While in regular dental attendance the percentage females with gingival recession (55.55%) was slightly lower than that of males (57.6%).

These findings are in agreement with several studies<sup>(33, 34)</sup>, This may be attributed to the reality that the females are more concerned about their appearance and esthetics, in addition generally females have lower plaque accumulation and with low inflammation than male<sup>(35)</sup>.

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Table (1): Distribution of the study sample according to the age and gender.

Age group (Years)	Males		Females		Total	
	No.	%	No.	%	No.	%
30-39	121	46.53	139	53.46	260	100
40-49	123	48.61	130	51.38	253	100
50-59	85	54.48	71	45.51	156	100
60-69	61	80.26	15	19.73	76	100
Total	390	52.34	355	47.65	745	100

Table (2): Distribution of the subjects with gingival recession according to the age and gender.

Age group (Years)	Males with gingival recession		Females with gingival recession		Total with gingival recession	
	No.	%	No.	%	No.	%
30-39	44	36.36	31	22.30	75	28.84 #
40-49	65	52.84	75	75.69	140	55.33 #
50-59	76	89.41	59	83.09	135	86.53 #
60-69	61	100	15	100	76	100
Total	246	63.07	180	50.7 *	426	57.18

#: Significant difference among different age groups ( $P < 0.05$ ).

\*: Significant difference between males and females ( $P < 0.05$ ).

Table (3): Numbers and mean of teeth affected with gingival recession per person according to the age and gender.

Age group (Years)	Males		Females		Total	
	No.	Mean	No.	Mean	No.	Mean
30-39	256	2.11	279	2.0	535	2.05 #
40-49	744	6.04	753	5.79	1497	5.91 #
50-59	1135	13.35	812	11.43	1947	12.48 #
60-69	870	14.26	189	12.6	1059	13.93
Total	3005	7.70	2033	5.72	5038	6.76

#: Significant difference among different age groups ( $P < 0.05$ ).

Table (4): Numbers and mean of tooth surfaces affected with gingival recession per person according to the age and gender.

Age group (Years)	Males		Females		Total	
	No.	Mean	No.	Mean	No.	Mean
30-39	589	4.86	1289	9.27	1878	7.22 #
40-49	2345	19	1718	13.21	4063	16.05 #
50-59	2721	32	1982	27.91	4703	30.14 #
60-69	2111	34.6	451	30.06	2562	33.71
Total	7766	19.91	5440	15.32	13206	17.72

#: Significant difference among different age groups ( $P < 0.05$ ).

Table (5): The relation between the frequency of tooth brushing and the subjects with gingival recession.

Frequency of tooth brushing	No. of individuals	Subjects with gingival recession.	Percentages of subjects with gingival recession.
Never	72	26	36.11
Infrequently	214	95	44.39
Once a day	261	131	50.19
Twice or more daily	198	106	53.5

Table (6): The relation between the regularity of the visits of the dentist and the individuals with gingival recession.

Dental attendance	Sex	No. of individuals	Individuals with gingival recession.	Percentages of individuals affected
Irregular	Male	298	181	60.73 *
	Female	211	104	49.28 *
	Total	509	285	55.99 (N)
Regular	Male	92	53	57.6
	Female	144	80	55.55
	Total	236	133	56.35 (N)

(N): Non significant difference between total males and females in (regular) and (irregular) dental attendance ( $P < 0.05$ ).

\* : significant difference between males and females in irregular dental attendance ( $P < 0.05$ ).