



ASSESSING THE PREVALENCE OF ETIOLOGIC FACTORS AND GINGIVAL RECESSION IN SCHOOL GOING CHILD SUBJECTS

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Abstract

Background: Literature data is scarce concerning the gingival recession in child subjects with most of the studies focusing on adults. It is needed to study the prevalence of gingival recession and associated factors in children.

Aim: The present study was done to assess the prevalence of gingival recession and associated etiologic factors in school-going child subjects.

Methods: 525 subjects were divided into 3 groups based on age range namely primary dentition, mixed dentition, and permanent dentition with age range as <7 years, 7-12 years, and >12 years. The subjects were assessed clinically by measuring the gingival recession with William's probe and the etiologic factors associated were assessed. Data gathered were statistically analyzed.

Results: In 8% (n=42) of study subjects, the gingival recession was seen. The recession was in 47.61% (n=20) males and 52.38% (n=22) female subjects which was significant with $p>0.05$. A high incidence of gingival recession was seen in subjects of age 7-12 years followed by <7 years, and >12 years with 73.80% (n=31), 21.42% (n=9), and 4.76% (n=2) subjects respectively. The factors associated were deleterious habits, anomalies, and malocclusion in 4.76% (n=2), 26.19% (n=11), and 69.04% (n=29) study subjects respectively. An association was seen in deleterious habits and malocclusion ($p>0.05$) compared to anomalies with $p<0.05$.

Conclusion: The present study concludes that gingival recession is a prevalent disease in school-going child subjects with a high prevalence in male subjects in the age range of 7-12 years. Gingival recession is associated with etiologic factors anomalies, deleterious habits, and malocclusion in school-going children.

Keywords: Gingival recession, etiologic factors, periodontal health, pediatric subjects, school-going subjects

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INTRODUCTION

Gingival recession is defined as the position of the gingival marginal apical to CEJ (cemento-enamel junction) with the exposure of the root surfaces. To maintain adequate mucogingival complex and periodontal health, it is vital to maintain an enduring attachment between teeth and associated soft tissues and bio morphologic integrity. Alterations in the mucogingival complex present as close disruption of the attachment leading to the pocket formation or the open disruption in the attachment leading to the gingival recession and gingival clefts.¹

The prevalence of gingival recession increases with the increase in age. The etiology of gingival recession is attributed to be multifactorial including tooth malposition, smoking, alveolar bone dehiscence, destructive periodontal disease, occlusal trauma, inadequate or excessive tooth brushing, high frenal attachment, and/or deleterious oral habits.²

Localized gingival recession presents sporadically as a disease in child subjects. The pathogenesis and etiology of gingival recession in child subjects are not well understood. However, the previous literature data has depicted a significant association of gingival recession in children to various factors including high frenal attachment, gingival inflammation, gingival ablation (soft tissue friction), malpositioning of teeth in the dental arch, and gingival abrasion (faulty tooth brushing technique).³

It has also been noted that gingival inflammation caused by dental plaque is the main etiologic factor for gingival recession. The existing literature data is scarce concerning the prevalence of gingival recession in child subjects and the majority of the literature data is focused on the adult subjects. Also, very few literature studies assessed the influence of age and gender on the gingival recession in school-going child subjects.⁴ The present clinical study was aimed to assess the prevalence of gingival recession and associated etiologic factors in school-going child subjects.

MATERIALS AND METHODS

The present clinical study was done to assess the prevalence of gingival recession and associated etiologic factors in school-going child subjects. The study population was recruited from the subjects visiting the Department of Pedodontics and Preventive Dentistry of the institute. Written and verbal informed consent was taken from the wards of all the subjects before study participation.

The study included child subjects in the age range of 5-15 years who were willing to participate in the study. The exclusion criteria for the study were subjects from whom informed consent could not be obtained, subjects not willing to study participate, subjects undergoing orthodontic treatment, children with special care needs, and children with systemic diseases.

The study included a total of 525 study subjects from the Outpatient Department of the Department of Pedodontics and Preventive Dentistry. A single examiner in the field carried out all the clinical examinations. The clinical examination included inspection of the mouth using adequate illumination, an explorer, and the mouth mirror.

The oral hygiene status at baseline was assessed using the Greene-Vermillion index.⁵ Molar relationship and gingival recession were assessed using Baume's classification and Miller's classification respectively.^{6,7} The clinical examination was then done for all the study subjects including the anomalies, oral habits, and malocclusion. The gingival recession was assessed using William's periodontal probe in all the study subjects.

Gingival recession is categorized as extensive or slight with recession of 1.5-3.5 mm and 0.5 or 1 mm respectively. The prevalence and etiologic factors for gingival recession were the primary measures for outcome, whereas, DMFT, malocclusion, and OHI (oral hygiene index) were then the secondary measures. Depending on the age of the study subjects, study subjects were divided into three groups primary dentition, mixed dentition, and permanent dentition with age ranges of <7 years, 7-12 years, and >12 years. The factors associated with gingival recession were dental anomalies, habits, and malocclusion.

The data gathered were analyzed statistically using SPSS software Version 17.0 (Chicago IL, USA) with Pearson's Chi-square test and one-way ANOVA. The data were expressed as numbers and percentages. The gingival recession in female and male subjects of different age groups was compared with associated risk factors of gingival recession. The significance level was kept at $p < 0.05$.

RESULTS

The present clinical study was done to assess the prevalence of gingival recession and associated etiologic factors in school-going child subjects. The study included 525 subjects divided into 3 groups based on age range namely primary dentition,

mixed dentition, and permanent dentition with age range as <7 years, 7-12 years, and >12 years. Among 525 study subjects, the majority of participants were in the age range of 7-12 years with 50.09% (n=263) subjects followed by 28.95% (n=152) subjects in <7 years, and least 20.95% (n=110) subjects in >12 years respectively. The mean OHI scores in study subjects were 1.1 ± 0.2 and DMFT was 1.2 ± 1.8 . There were 53.90% (n=283) males and 46.09% (n=242) females in the present study. Gingival recession was seen in 8% (n=42) of study subjects among 525 subjects.

Based on gender, gingival recession was seen in the majority of the subjects from 7-12 years with 73.80% (n=31) subjects having recession followed by 21.42% (n=9) subjects from <7 years, and least in >12 years with 4.76% (n=2) study subjects respectively. Based on gender, the gingival recession was seen in 52.38% (n=22) female and 47.61% (n=20) male subjects. Concerning the associated factors, malocclusion was the most common etiologic factor seen in 69.04% (n=29) study subjects followed by anomalies in 26.19% (n=11) subjects, and deleterious habits in 4.76% (n=2) study subjects respectively.

On assessing the association of age with etiologic factors of gingival recession in study subjects, it was seen that deleterious habits were seen in 0.6% of subjects from <7 years, 0.1% from 7-12 years, and 0.3% from >12 years which was non-significant with $p=0.567$. Concerning the anomalies, they were seen in 1%, 2.5%, and 2.4% of study subjects respectively from <7, 7-12, and >12 years of age range respectively. This was a non-significant association in age and anomalies with $p=0.097$. Malocclusion was seen in 1.7%, 4%, and 13.4% of study subjects respectively. A significant association was seen in malocclusion and age of the study subjects in >12 years old subjects with $p=0.001$ as shown in Table 2.

Concerning the association of gender with etiologic factors of gingival recession in study subjects, it was seen that deleterious habits were seen in 0.07% of males and 0.4% of females which was statistically non-significant with $p=0.103$. Anomalies were seen in 2% of male and 2% of female study subjects which was non-significant with $p=0.94$. Malocclusion was seen in 5.6% of males and 5.3% of females with $p=0.82$ which was statistically non-significant as depicted in Table 3.

DISCUSSION

The present study included 525 subjects divided into 3 groups based on age range namely primary

dentition, mixed dentition, and permanent dentition with age range as <7 years, 7-12 years, and >12 years. Among 525 study subjects, the majority of participants were in the age range of 7-12 years with 50.09% (n=263) subjects followed by 28.95% (n=152) subjects in <7 years, and least 20.95% (n=110) subjects in >12 years respectively. The mean OHI scores in study subjects were 1.1 ± 0.2 and DMFT was 1.2 ± 1.8 . There were 53.90% (n=283) males and 46.09% (n=242) females in the present study. Gingival recession was seen in 8% (n=42) of study subjects among 525 subjects. The data were similar to the studies of Albandar JM et al⁸ in 2002 and Sarfati A et al⁹ in 2010 where authors assessed subjects with demographic data comparable to the present study.

It was seen that for the gender, the gingival recession was seen in the majority of the subjects from 7-12 years with 73.80% (n=31) subjects having recession followed by 21.42% (n=9) subjects from <7 years, and least in >12 years with 4.76% (n=2) study subjects respectively. Based on gender, the gingival recession was seen in 52.38% (n=22) female and 47.61% (n=20) male subjects. Concerning the associated factors, malocclusion was the most common etiologic factor seen in 69.04% (n=29) study subjects followed by anomalies in 26.19% (n=11) subjects, and deleterious habits in 4.76% (n=2) study subjects respectively. These results were consistent with the previous studies of Nuvvula S et al¹⁰ in 2021 and Trott JR et al¹¹ in 1966 where authors reported similar distribution of age and gender in their study subjects as in the present study.

The study results showed that for the association of age with etiologic factors of gingival recession in study subjects, it was seen that deleterious habits were seen in 0.6% of subjects from <7 years, 0.1% from 7-12 years, and 0.3% from >12 years which was non-significant with $p=0.567$. Concerning the anomalies, they were seen in 1%, 2.5%, and 2.4% of study subjects respectively from <7, 7-12, and >12 years of age range respectively. This was a non-significant association in age and anomalies with $p=0.097$. Malocclusion was seen in 1.7%, 4%, and 13.4% of study subjects respectively. A significant association was seen in malocclusion and age of the study subjects in >12 years old subjects with $p=0.001$. These results were in agreement with the findings of Mathur A et al¹² in 2009 and Kassab MM et al¹³ in 2003 where authors suggested a similar association of age and malocclusion to the gingival recession.

Concerning the association of gender with etiologic factors of gingival recession in study subjects, it was seen that deleterious habits were seen in 0.07% of males and 0.4% of females which was statistically non-significant with $p=0.103$. Anomalies were seen in 2% of male and 2% of female study subjects which was non-significant with $p=0.94$. Malocclusion was seen in 5.6% of males and 5.3% of females with $p=0.82$ which was statistically non-significant. These findings were in line with the previous findings of Toker H et al¹⁴ in 2009 and Nguyen-Hieu T et al¹⁵ in 2012 where authors suggested a similar non-significant association as of the present study in their study subjects.

CONCLUSION

Considering its limitations, the present study concludes that gingival recession is a prevalent disease in school-going child subjects with a high prevalence in male subjects in the age range of 7-12 years. Gingival recession is associated with etiologic factors anomalies, deleterious habits, and malocclusion in school-going children.

CONFLICTS OF INTEREST: Nil

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TABLES

S. No	Characteristics	Number (n=525)	Percentage (%)
1.	Age range (years)		
a)	<7	152	28.95
b)	7-12	263	50.09
c)	>12	110	20.95
2.	Gender		
a)	Males	283	53.90
b)	Females	242	46.09
3.	Gingival recession present	42	8

4.	Gingival recession (gender-based)		
a)	Males	20	47.61
b)	Females	22	52.38
5.	Gingival recession (age-based)		
a)	<7	9	21.42
b)	7-12	31	73.80
c)	>12	2	4.76
6.	Associated factors		
a)	Deleterious habits	2	4.76
b)	Anomalies	11	26.19
c)	Malocclusion	29	69.04

Table 1: Demographic and disease characteristics of the study subjects

S. No	Factors associated	<7 years (%)	7-12 years (%)	>12 years (%)	p-value
1.	Deleterious habits	0.6	0.1	0.3	0.567
2.	Anomalies	1	2.5	2.4	0.097
3.	Malocclusion	1.7	4	13.4	0.001

Table 2: Association of age with etiologic factors of gingival recession in study subjects

S. No	Associated factors	Males (%)	Females (%)	p-value
1.	Deleterious habits	0.07	0.4	0.103
2.	Anomalies	2	2	0.94
3.	Malocclusion	5.6	5.3	0.82

Table 3: Association of gender with etiologic factors of gingival recession in study subjects