

ASSESSING THE PREVALENCE OF GINGIVAL RECESSION AND ITS RISK FACTORS AMONG PATIENTS VISITING TERTIARY CARE DENTAL HOSPITAL, LARKANA

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ABSTRACT

Objective: To assess the prevalence of gingival recession and its risk factors among patients visiting tertiary care dental hospital, Larkana

Materials and Methods: A cross-sectional study was conducted at Bibi Aseefa Dental College's Department of Periodontology in Larkana. Data was collected utilizing a closed-ended questionnaire and clinical examination. The questionnaire included demographic information, habits, oral hygiene practices, and related risk factors. All participants underwent examination under appropriate lighting conditions using a front surface mouth mirror, a curved sharp sickle explorer (standard explorer), and a CPITN probe. Gingival recession was assessed following the Miller Jr. classification of marginal tissue recession. Following the clinical examination, all participants received instructions regarding proper oral hygiene practices. The data were analyzed using IBM SPSS Statistics V22.0, a software developed by IBM in the United States.

Results: The male were 58% and female were 42%. Mean age was 32.34±9.79. Gingival Recession was observed in 14% patients. Horizontal brushing pattern was used by majority (42%) of patients followed by freestyle (29%). Cigarettes per day used by patients as less than 1 packet were 12%. Association of gingival recession with gender ($p=0.161$), type of tooth brush ($p=0.484$), cigarettes/day ($p=0.608$) and stress ($p=0.404$) showed in-significant relationship.

Conclusion: The findings of the study indicated that gingival recession was not prevalent among patients seeking treatment at the dental tertiary care hospital. However, it was observed that males were more affected than females. The study also identified horizontal tooth brushing technique and cigarette smoking as the commonly associated risk factors.

Keywords: Attachment loss, Gingival, Frequency, Recession, Smoking

INTRODUCTION

Gingival recession (GR) refers to the exposure of the root surface due to a downward shift in the gingival margin. Typically, the gingival margin is located circumferentially and positioned 1-3 mm coronal to the cement-enamel junction (CEJ)¹. Although gingival recession (GR) is not considered a distinct disease, it carries significant clinical importance due to various factors that can be distressing for patients. Its aesthetic impact is a primary concern, as it ranks among the most prevalent mucogingival issues, leading to esthetic problems for many individuals. Additionally, the exposure of the root surface to the oral environment as a result of GR can give rise to psychological and functional complications^{2,3}. Gingival recession is a common occurrence in adults and tends to become more prevalent with advancing age. It can be observed in populations with varying levels of oral hygiene standards, including both those with high and low standards of oral hygiene⁴. Research has shown that individuals who employ the horizontal tooth brushing technique are more susceptible to gingival recession (GR) compared to those who use the Bass or circular techniques. This association holds true even for individuals who brush their teeth only once per day using medium hardness bristles⁵. In individuals with good oral hygiene, gingival recession (GR) typically manifests as wedge-shaped lesions on the buccal surface of the teeth. However, in individuals with poor oral hygiene, GR can occur on any tooth surface. It is important to note that GR can also develop in patients with excellent oral hygiene, particularly when there are malpositioned teeth or when a hard toothbrush is

used⁶. The etiology of gingival recession (GR) is multifactorial and involves various factors, including anatomical, inflammatory, and traumatic elements. Among the most significant factors associated with GR are destructive periodontal disease, inadequate teeth brushing practices, aggressive oral hygiene habits, the presence of dental plaque and supra/subgingival calculus, alveolar bone dehiscence, high muscle attachment, occlusal trauma, frenal pull, gingival biotypes, and iatrogenic factors associated with reconstructive, conservative, periodontal, orthodontic, or prosthetic treatments⁷⁻¹⁰. Tobacco smoking is widely recognized as one of the primary risk factors for the development of destructive forms of periodontal disease. Moreover, it is also considered a risk factor associated with the occurrence of gingival recession (GR)^{11,12}. However, the precise mechanism behind gingival recession (GR) is not yet fully understood, as several etiological factors have been identified. Among these factors, the primary cause of GR is attributed to the accumulation of dental plaque, which leads to gingival inflammation¹³⁻¹⁸.

Gingival recession (GR) poses a significant challenge, particularly considering the growing aesthetic expectations of patients today. While a few epidemiological studies have explored the prevalence of GR and its associated factors in hospital populations across different countries, there is limited research conducted in Pakistan. Therefore, it becomes crucial to gather comprehensive information and assess the trends and epidemiology of this condition in order to identify its etiological factors and establish preventive measures. There is a pressing need to

investigate the prevalence of GR and explore potential associations with this condition. The aim of this study is to evaluate the prevalence of gingival recession and its predisposing factors in patients attending the Dental Tertiary Care Hospital in Larkana.

MATERIALS AND METHODS

This study was carried out in Dental Hospital of Larkana from September 2022 to February 2023. The study underwent a thorough review and received approval from the Ethical Review Committee (ERC) of the university. Additionally, official permission was obtained from the relevant institution authorities where the study took place. Written informed consent was obtained from each participant before their involvement in the study. The study was conducted on a sample of two hundred subjects in the Department of Periodontology at Bibi Aseefa Dental College, Larkana, using a convenient sampling technique. The study focused on examining systemically healthy subjects who volunteered to participate. Each day, a maximum of 8-10 subjects were examined. Sufficient instrument sets were prepared for the survey, ensuring proper sterilization and infection control measures. Data collection involved the use of a closed-ended questionnaire and clinical examination. The questionnaire included details regarding demographics, habits, and oral hygiene practices. All subjects underwent examination under appropriate illumination, employing a front surface mouth mirror, curved sharp sickle explorer (standard explorer), and CPITN probe. The measurement and recording of gingival recession followed the Miller Jr. classification of

marginal tissue recession¹⁸. Following the clinical examination, all participants received instructions regarding proper oral hygiene practices. The data collected were analyzed using IBM SPSS Statistics V22.0, software developed by IBM in the United States.

Data analysis plan:

The data was entered and analyzed using SPSS version 26. Quantitative variables, such as age, are presented as mean and standard deviation. Qualitative variables, including gender, socioeconomic status, and associated risk factors such as tooth brushing, stress, gingival recession, pattern of brushing, and cigarette smoking, are presented as frequency and percentage. Association of GR with gender, type of tooth brush, cigarettes smoking and stress was evaluated statistically using chi square test by taking p value < 0.05 as significant.

RESULTS

The male were 58% and female were 42%. Mean age was 32.34±9.79. Socio economic status (SES) was categorized as Very low SES 40% followed by Low SES 37% and Moderate 23%. (Table-1)

The oral hygiene was maintained with toothbrush by 87%. Horizontal brushing pattern was used by majority (42%) of patients followed by freestyle (29%). Cigarettes per day used by patients as less than 1 packet were 12%. (Table-2)

Gingival Recession was observed in 14% patients (Figure-1). Gingival Recession according to Miller's Classification was observed in class-1 and class-2 was 5% and 5% respectively (Figure-2)

Association of GR with gender (p=0.161), type of tooth brush (p=0.484), cigarettes/day (p=0.608) and stress (p=0.404) showed in-significant relationship (Table-3).

Table-1 Descriptive statistics of demographic variables (n=200)

CHARACTERISTICS	FREQUENCY	PERCENTAGE
GENDER		
Male	116	58.0
Female	84	42.0
AGE		
Mean Age	32.34±9.79	
SOCIO-ECONOMIC STATUS		
Very Low SES	80	40.0
Low SES	74	37.0
Moderate SES	46	23.0

Table-2 Descriptive statistics of risk factors variables (n=200)

CHARACTERISTICS	FREQUENCY	PERCENTAGE
BRUSHING		
Yes	173	86.5
No	27	13.5
PATTERN OF BRUSHING		
No Brushing	27	13.5
Horizontal	84	42.0
Vertical	20	10.0
Circular	12	6.0
Freestyle	57	28.5
CIGARRERETS/DAY		
No	159	79.5
<1 Pack	23	11.5
1 Pack	16	8.0
>1 Pack	2	1.0
STRESS		
Yes	45	22.5
No	155	77.5

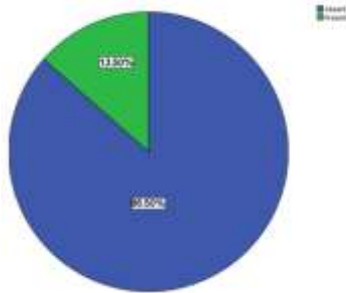


Figure-1: Distribution of Gingival Recession (n=200)

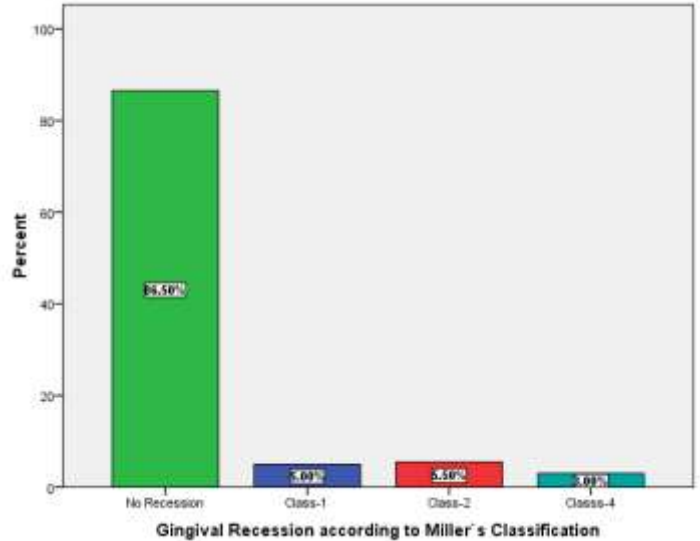


Figure-2: Gingival Recession according to Miller's Classification (n=200)

Table-3 Association of GR with Associated Risk Factors (n=200)

Table-3 association of GR with associated risk factors (n=200)	Gingival recession		P. Value
	Absent	Present	
Gender			
Male	97 (83.6%)	19 (16.4%)	0.161
Female	76 (90.5%)	8 (9.5%)	
Type of toothbrush			
No brushing	26 (92.9%)	2 (7.1%)	0.484
Soft	64 (87.7%)	9 (12.3%)	
Medium	65 (85.5%)	11 (14.5%)	
Hard	18 (78.3%)	5 (21.7%)	
Cigarettes/Day			
No cigarettes	135 (84.9%)	24 (15.1%)	0.608
<1Pack/Day	21(91.3%)	2(8.7%)	
1Pack/Day	15 (93.8%)	1 (6.2%)	
>1Pack/Day	2 (100%)	0 (0%)	
Stress			
Present	38 (84.4%)	7 (15.6%)	0.404
Absent	135 (87.1%)	20 (12.9%)	

DISCUSSION

The mucogingival complex refers to the region where the mucogingival tissues exhibit a harmonious integration, and the attachment of the teeth to the soft tissues is crucial. When issues arise, they typically manifest in two ways. First, pocket formation occurs due to a near disruption in the mucogingival complex. Second, gingival recession and gingival clefts can develop as a result of an open disruption in the mucogingival complex^{19,20}. Gingival recession refers to the displacement of the marginal gingiva from its normal position on the tooth crown towards the root surface, resulting in its apical shift²¹. Gingival recession is frequently observed by dentists, often more noticeable than other dental conditions. It can give rise to esthetic concerns, particularly when it causes anxiety related to tooth loss and affects the appearance of anterior teeth. Additionally, gingival recession can lead to various issues such as hypersensitivity, cervical wear, root caries, and erosion. These problems arise due to the exposure of root surfaces, which increases the risk of dental plaque accumulation²².

In this study prevalence of the gingival recession was seen among 14% of the individuals which are not in agreement with the results of Dharsan R et al²³, Kassab MM⁽²⁴⁾ and van Palenstein Helderma WH et al.⁽²⁵⁾ The high difference could be due to the study design and population. A study conducted in Greece revealed an overall frequency of gingival recession as 63%. However, it is important to note that other studies have reported lower frequencies of this condition. The variation in frequencies could be attributed to differences in age groups and aesthetic

preferences among different countries. Factors such as cultural norms, oral health practices, and genetic predispositions may also contribute to the observed differences in the prevalence of gingival recession across various populations.⁽²⁶⁾

The results of this study revealed that gingival recession was not a commonly observed condition, with a prevalence of 16% among males and 9% among females. These findings differ from previous cross-sectional studies that have reported higher prevalence rates conducted by Manchala SR et al²⁷, Joshipura KJ et al²⁸. and Albandar JM & Kingman²⁹. The difference could be due to the population of different countries, age groups and time period of study.

The findings of this study regarding gingival recession, as per the Miller classification, differ from the results of a study conducted by Albandar JM & Kingman²⁹. In their study, they reported an observation of gingival recession of 1mm or greater in 58% of the participants. These results indicate dissimilarity between the two studies in terms of the prevalence and severity of gingival recession.

According to this study and study of Muller et al³⁰. The data obtained from the study did not provide support for the hypothesis that smokers are at a higher risk for the development of gingival recession. In this study there was no significant relationship of smoking and recession however there is a significant link between smoking and the development of attachment loss and gingival recession that could be due to the reporting of the data or the study design were few used cross-sectional and could also be due to less number of cigarettes smoking per day^{31,32}.

Gingival recession due to improper technique and type of tooth brush was also seen in this study which correlates with the study conducted by Joshipura et al²⁸. and Khocht et al⁶.

CONCLUSION

It was concluded that the gingival recession was not common among the most of patients visiting the dental tertiary care hospital. The common associated risk factors were horizontal pattern of tooth brushing and cigarettes smoking. Association of GR with its risk factors like type of tooth brush, cigarettes smoking and stress showed in-significant relationship. It is recommended that the proper tooth brushing techniques along with proper tooth brush should be used. Regular visits to dentist may also help in preventing the GR. Furthermore it is also recommended for more studies with increased sample size and multi centered research may be carried out.

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