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Gingival recession in a Rural Community in Nigeria: A Pilot Study

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Abstract:
Introduction*: Gingival recession could affect an individual's quality of life with nutritional, functional and psychosocial consequences when associated with clinical problems such as root surface hypersensitivity, root caries, cervical root abrasions, erosions , calculus/plaque retention and chronic periodontitis. The purpose of using tooth cleaning device like chewing stick and toothbrush is to attain good oral hygiene compatible with good oral health. Gingival recession may be localized to one tooth, or a group of teeth, or may be generalized throughout the oral cavity.*
Objective*: To evaluate the prevalence of gingival recession in a rural community in Nigeria*
Methodology: *A cross sectional study of 54 participants was carried out at Ozalla Model Primary Health Centre. They were interviewed for socio-demographic characteristics using interviewer administered questionnaire and an intra-oral examination using disposable instruments for each participant was conducted for the presence/absence of gingival recession. Data was analysed using Statistical Package for Social Sciences (SPSS) Version 20.*
Results*: The prevalence of gingival recession was 22.2 %; it was common in males than females [M:F 3:1], the mandibular teeth were more commonly affected. The age range of participants examined was 17years to 84 years and the mean age was 44.5± 17.4years.The predominant occupation was farming and small scale business/trading.85.2% of the participants uses toothbrush only as an oral hygiene device and 53.7% had not visited a dental clinic. P values < 0.05 were accepted as being statistically significant. P-value = 0.001.*
Conclusion*: Gingival recession was more common in mandibular teeth and both sides of the dental arch. It was more common in males, which was similar with some previous studies across Africa and the World.*
Key words*: Gingival recession, rural, community*

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I. Introduction

Gingival recession is the exposure of the root of a tooth due to a receding gum, it could affect an individual's quality of life with nutritional, functional and psychosocial consequences when associated with clinical problems such as root surface hypersensitivity, root caries, cervical root abrasions, erosions, calculus/plaque retention and chronic periodontitis. For a patient, gingival recession usually creates an aesthetic problem, especially when it affects the anterior teeth [1], and anxiety about tooth loss due to progressing loss of tooth support. Gingival recession may be localized to one tooth, or a group of teeth, or may be generalized throughout the oral cavity. It may be associated with apical shift of marginal gingiva on one or more surfaces resulting in clinical attachment loss and root exposure.[2]

The purpose of using tooth cleaning aids like chewing stick and toothbrush is to attain good oral hygiene compatible with good oral health. Unfortunately, the practice when not performed appropriately, may result into unwanted ill effects such as recession of the gingival tissues, trauma to soft tissues and abrasion of dental hard tissues [3].

The causes of gingival recession is multifactorial and several predisposing factors may play a role in gingival recession development, such as vigorous teeth brushing, destructive periodontal disease, tooth malposition, frenum pull ,chewing stick trauma, occlusal trauma and iatrogenic factors like inappropriate fixed prostheses, poorly designed partial dentures, operative procedures, and some orthodontic treatment.[4-6]

Mohamed et al., in 1991 examined the relationship between chewing sticks (Miswak) and gingival recession and he reported that The Miswak users had significantly more sites with gingival recession than did the toothbrush users[7]. They concluded that the Miswak should be considered as a possible factor in gingival recession.
Previous epidemiological studies in Tanzania have shown that Tooth cleaning devices commonly used include plastic toothbrushes (52-68%), chewing sticks (26-32%), both plastic toothbrushes as well as chewing sticks (17.0%), and dental floss (1%) [8-9].Most of the rural population that constitutes about 85% of the general population in Tanzania uses chewing sticks rather than the toothbrush (8-9).
Some studies reported that the maxillary canines and premolars [10] were the teeth most frequently affected by gingival recession, others reported that the mandibular lateral incisors and premolars , the maxillary and mandibular first molars are commonly affected [11]. Sarpangala et al., in 2015 [12]reported that canines of both the upper right and left were the most frequent regions affected by gingival recession. It has been discovered that the distribution pattern of gingival recessions is related to different etiologic factors.[11] Gingival recessions on the mandibular incisors were tied to poor oral hygiene [13] whereas those on the premolars were linked to traumatic tooth brushing [14].

A high prevalence of gingival recession has been reported in America (63%-89%) [15-17], Europe (25%-84%) [18-23] and Australia (71%) [24] , but a lower prevalence has been found in Africa (28%) [14, 25,] and Asia (15%) [26].Humagain and Kafle in 2013 reported [2] a prevalence of 65.44% from a study conducted in Nepal, India. Mumghamba *et al*., in 2009 from reports in East-Africa, conducted a study in Tanzania and reported a prevalence of 33.6%[3]. Arowojolu in 2000 reported [25] a prevalence of 27.7% from a study done in Ibadan, Nigeria.
There are various studies and reports of the prevalence of gingival recession in other parts of the country and the World. The aim of this study is to determine the prevalence of gingival recession in a rural community in order to contribute to the existing data on gingival recession in Nigeria and the West African sub-region. It will also compare findings with published reports from Nigeria and other countries of the World.

II. Materials And Method

The study was conducted on participants who presented at Ozalla model primary health centre at the time of the study[March,2019].Ozalla town is one of the thirty three (33) towns that make up Nkanu -West local Government Area of Enugu State [27].The area is largely rural and its inhabitants are primarily farmers, small-scale business people and traders. Nkanu-West Local Government area of Enugu State is one of the seventeen(17) local government areas of Enugu State and has its headquarters at Agbani [27].Ethical clearance for this study was sought and obtained. Permission was sought from the head of the community and health centre, while individual verbal consent (not written to encourage anonymity) was obtained from the respondents before giving out the pre-tested questionnaire which was interviewer-administered and an intra oral examination using disposable instruments for each person examined was conducted for the presence/absence of gingival recession. Data were analysed using a computer software programme, Statistical Package for Social Sciences (SPSS) Version 20. Pvalues < 0.05 were accepted as being statistically significant.

III. Results

A total of 54 participants were seen and examined, 27(50 %) were males and 27(50%) were females with male to female ratio of 1:1**.**The age of the participants was 17years to 84 years with a mean age of 44.5 ± 17.4years **(Table 1).**12 (22.2%) of the participants presented with gingival recession,42 (77.8%) of the participants did not present with gingival recession. The participants who presented with gingival recession were 9 males and 3 females with a ratio of 3:1[M:F] **(Table 3)**.85.2% of the participants uses toothbrush only as oral hygiene device**(Table 2)** and 53.7% had not visited a dental clinic. Mandibular teeth were more commonly affected with gingival recession**.(Table 4)**

Table 1: Socio-Demographic Characteristics Of Respondents

Variable	Number	Percent
Gender		
Male	27	50
Female	27	50
Age group(yrs)		
Less than 30	14	25.9

	30-49	18	33.3
	50-69	16	29.7
	70 and above	6	11.1
		54	100
	Level of education		
	Primary	15	27.8
	Secondary	24	44.4
	Tertiary	15	27.8
		54	100

Table 2 oral hygiene device used by the participants

Oral hygiene device used	Number	Percent
Toothbrush	46	85.2
Chewing stick	4	7.4
Toothbrush& chewing stick	4	7.4
Total	54	100.0

Table 3 Age and gender relationship of participants with gingival recession

Variable	Number
Age group(yrs)	
20-40	3
50-60	3
Over 60	6
P- value = 0.001	
Gender	
Male	9
Female	3
Total	12
P = 0.051	

Table 4 Teeth with gingival recession

Variable	Number	Percent
Maxillary teeth	1	8.3
Mandibular teeth	8	66.7
Both	3	25
	12	100

IV. Discussion

Gingival recession has been defined as a displacement of gingival margin apically from the cemento-enamel junction (CEJ), leading to root-surface exposure[1]. It is commonly observed in adult subjects and can be localized or generalized[2].The prevalence of gingival recession was 22.2 % of the studied population, which was slightly less than previous studies ranging from 22.5% to 28 % [25,28]. This study demonstrated higher prevalence of gingival recession in mandibular teeth as compared to maxillary teeth, which is in agreement with the findings of previous studies.[8,11, 14,29]Lower occurrence of gingival recessions in maxillary teeth is probably related to the characteristics of keratinized mucosa, which is wider and thicker in maxilla than in the mandible.[22]

The occurrence of gingival recession correlated with age, which is supported by reports of other studies around the World [14,17,25 30]. This study confirms that the prevalence of gingival recession increase with age; which is consistent with most of the epidemiological studies on several age groups.[2,31-32]. The relationship between increased prevalence of gingival recession and age could be due to the cumulative effect of age, periodontal disease and longer period of exposure to the agents that cause gingival recession [2].Majority (85.2%) of the participants used a plastic toothbrush, and few used chewing sticks (7.4%) and a combination of chewing sticks

and plastic toothbrushes (7.4%).This study showed greater gingival recession in males than in females which was similar with previous reports. [1,33]

V. Conclusion

The occurrence of gingival recession increased with age in this study, affecting more mandibular teeth on both sides of the dental arch. It was more common in males than females, which was similar with some previous studies across Africa and the World. The predominant occupation was farming and small scale business/trading.

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