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Gingival recession in a rural community in Nigeria: a pilot study

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Abstract
Background: 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.
Objective: To determine the prevalence of gingival recession in a rural community in South-east Nigeria.
Methods: A cross sectional descriptive 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 intra-oral examination using disposable instruments for each participant was conducted to determine the presence or absence of gingival recession. Ethical clearance for this study was sought and obtained. After data collection, oral health education and tooth brushing demonstrations were done. Data was analysed using Statistical Package for Social Sciences (SPSS) Version 20. P values < 0.05 were accepted as being statistically significant.
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 range of participants examined was 17- 84 years and the mean age was 44.5± 17.4 years. The prevalence of gingival recession was 22.2 %. Majority (85.2%) of the participants uses toothbrush with toothpaste only as an oral hygiene device, 81.5% of the participants brush their teeth once daily and 53.7% had not visited a dental clinic. P values < 0.05 were accepted as being statistically significant. P = 0.001.
Conclusions: The prevalence of gingival recession was 22.2 %. Gingival recession was more common in mandibular teeth and both sides of the dental arch.

Keywords: gingival recession, rural, community

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. 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 with toothpaste 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*., 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]. He 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 reported [2] a prevalence of 65.44% from a study conducted in Nepal, India. Mumghamba *et al*., from reports in East-Africa, conducted a study in Tanzania and reported a prevalence of 33.6% [3]. Arowojolu 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 South-east Nigeria 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.

Materials and Method

The study was conducted among participants who presented at Ozalla model primary health centre at the time of the study. 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 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. After data collection, oral health education and tooth brushing demonstrations were done. Data were analysed using a computer software programme, Statistical Package for Social Sciences (SPSS) Version 20. P values < 0.05 were accepted as being statistically significant.

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 range of the participants examined was 17years to 84 years with a mean age of 44.5 ± 17.4 (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). The predominant occupation was farming and small-scale business/ trading. 85.2% of the participants uses toothbrush with toothpaste only as oral hygiene device. (Table 2), 81.5% of the participants brush their teeth once daily and 53.7% had not visited a dental clinic. Mandibular teeth were more commonly affected with gingival recession. (Figure 1).

Table 1: Socio-Demographic Characteristics of Respondents

Variable	Frequency	Percent
Gender		
Male	27	50
Female	27	50
Age group		
10-19	2	3.7
20-29	12	22.2
30-39	10	18.5
40-49	8	14.8
50-59	6	11.1
60-69	10	18.5
70-79	5	9.3
80-89	1	1.9
Level of education		
Primary	15	27.8
Secondary	24	44.4
Tertiary	15	27.8
Total	54	100

Table 2: Oral hygiene device used by the participants

Oral hygiene device used	Frequency	Percent
Toothbrush	46	85.2
Chewing stick	4	7.4
Toothbrush& chewing stick	4	7.4
Total	54	100

Table 3: Age and gender relationship of participants with gingival recession

Variable	Frequency	Percent
Gender		
Male	9	75
Female	3	25
P = 0.051		
Age group		
20-40	3	25.0
50-60	3	25.0
Over 60	6	50.0
P- value = 0.001		
Total	12	100

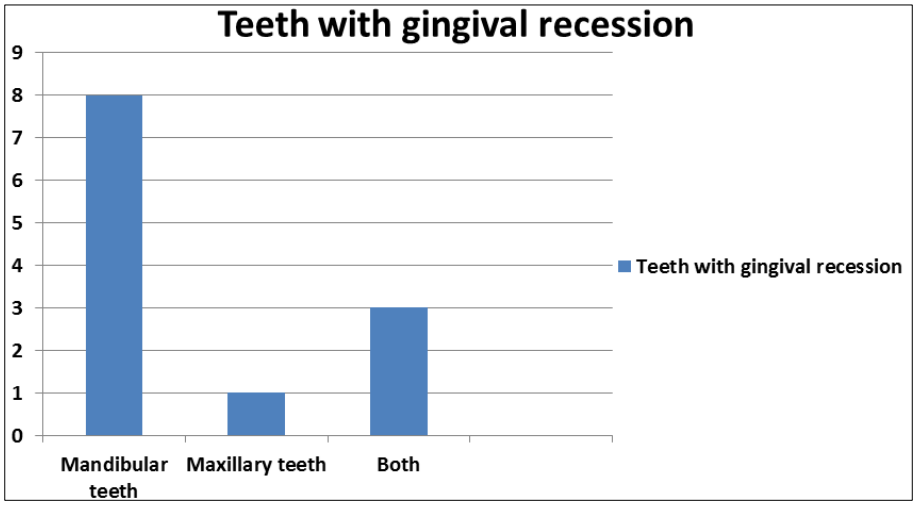

Fig 1: Teeth with gingival recession

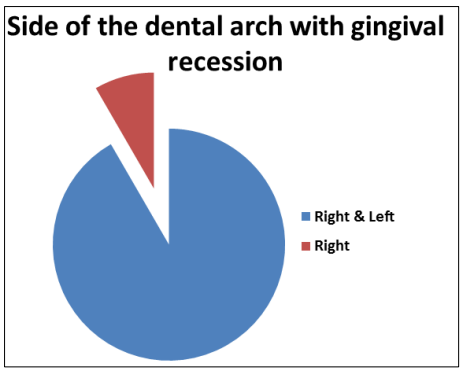

Fig 2: Side of the dental arch with presence of gingival recession

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 previous studies [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, 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]

Conclusion

The prevalence of gingival recession was 22.2 %. It was more common in mandibular teeth and both sides of the dental arch. The occurrence of gingival recession increases with age and was more common in males than females.

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Conflicts of interest

There are no conflicts of interest**.**

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