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A Study of Aspects Relating to Tooth Loss in Delta State, Nigeria

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ABSTRACT

Tooth loss is mainly attributed to dental caries and periodontal diseases. The aim of this study was to determine the factors related to tooth loss among Deltans in Nigeria. The multi-stage sampling technique was employed in this cross sectional study. Data were collected through the use of a questionnaire. The study also involved intra – oral examination of 384 Deltans (aged 11 to 70 years) which was done between May to June 2015. The data were analyzed using the Statistical Package for the Social Sciences (SPSS 20). The association of tooth loss with gender, socioeconomic status, alcohol, cariogenic foods and bad oral hygiene was investigated using the chi-square test as a $P < 0.05$ was considered significant. The study revealed that gender, socioeconomic status, alcohol, cariogenic foods and poor oral hygiene are all associated with tooth loss among Deltans ($P < 0.05$). The study revealed the significant risk factors for tooth loss; namely dental caries, periodontal disease, alcohol, gender, socio-economic status, oral hygiene practices and self-rated oral care.

Key words: Dental caries, tooth loss, Deltans.

INTRODUCTION

Caries and periodontal disease have continued to account for a large proportion of tooth loss in Nigerians¹. A study was carried out to determine the pattern of loss of teeth in Delta State, a region in the Niger Delta. It was noted that molar teeth were lost much more frequently than other teeth in the mouth².

The social factors related to tooth loss were investigated in a 12 years follow-up study of women in Gothenburg, Sweden.³ Tooth loss was considered among the less educated and people of a lower socio-economic status in Iran⁴. The consumption of processed foods rich in sugars and fats were discussed as important risk factors for dental caries and tooth loss in a study⁵. The risk indicators associated with tooth loss in Jordanian adults” in the year 2000, were investigated⁶.

Deltans of all ages, gender and status are affected by tooth loss hence this study portrays some interesting aspects relating to tooth loss among Deltans in Nigeria. The aim of this study was to determine the factors related to tooth loss among Deltans in Nigeria. This study will provide baseline data for dental practitioners.

MATERIALS AND METHODS

Approval for this study was obtained from the Anatomy Department Research and Ethics Committee in the Delta State University, Abraka. Consent was obtained

from each participant as only voluntary subjects were allowed to participate in the exercise. Permission was also gotten from the Medical Directors in the Clinics visited.

The study area is Delta State (Abraka, Asaba and Warri towns) in Nigeria. The multi-stage sampling technique was employed in the study. Data were collected through the use of questionnaire and intra – oral examination of 384 research subjects. Sample size calculation was done using the formular:

$$N = \frac{Z^2 \times p(1-p)}{e^2}$$

The intra – oral examination was done by one examiner using artificial light and dental mirror to determine the missing teeth. This cross sectional study was done in the months of May and June, in 2015. The study involved participants who have lost one or more teeth. They were patients visiting Dental Clinics in Warri, Abraka and Asaba in Delta State.

The data were entered and analyzed using the Statistical Package for the Social Sciences (SPSS 20). The difference in the prevalence of tooth loss between the two genders was considered using the chi-square test as a $P < 0.05$ was regarded as significant. The association of tooth loss with socioeconomic status, alcohol,

cariogenic foods and bad oral hygiene was investigated using the chi-square test as a $P < 0.05$ was considered significant.

RESULTS

Table 1: Frequency distribution of respondents' age

Age (years)	Number (n)	Percentage (%)
11 - 20	25	6.5
21 - 30	102	26.6
31 - 40	92	24.0
41 - 50	82	21.4
51 - 60	37	9.6
61 - 70	46	12.0
Total	384	100.0

Table 1 revealed that a good number of the study subjects belonged to the 21 to 30 years age group.

Table 2: Some socio-demographic characteristics of respondents

Characteristic	Category	Number	%
Gender	Male	181	47.1
	Female	203	52.9
	None	7	1.8
Educational status	Primary	24	6.3
	Secondary	140	36.5
	Tertiary	213	55.5

Table 2 revealed that most of the subjects are graduates.

Table 3: The social classes of respondents

	Category	Number	Percentage (%)
Employment status	Civil servants	88	22.9
	Private	119	31
	Self employed	132	34.4
	Retired	45	11.7
Monthly income	1,000-9,000	58	15.1
	10,000-50,000	221	57.6
	60,000-120,0000	91	23.7
	130,000-200,000	11	2.9
	Above 200,000	3	0.8
Socio-economic status	Low	277	72.1
	Average	101	26.3
	High	6	1.6

Table 3 revealed that about one - third of the subjects are self-employed.

Table 4: Intra –oral examination of subjects.

Finding	Number	Percentage (%)
None	324	84.4
Halitosis	16	4.2
Dental caries	18	4.7
Pulpitis	13	3.4
Apical Periodontitis	13	3.4
Total	384	100.0

Intra –oral examination of the subjects revealed that most of them have received dental care and apparently had no oral lesions.

Table 5: Causes of tooth loss

Cause	Number	Percentage (%)
Dental caries	180	46.9
Periodontal disease	80	20.8
Fractured tooth	53	13.8
Trauma	71	18.5
Total	384	100.0

Table 5 revealed that dental caries topped the causes of tooth loss as claimed by the respondents.

Table 6: Pattern of tooth loss

Region	Number	Percentage (%)
Upper jaw	123	33
Lower jaw	226	68
Anterior	141	36.7
Posterior	243	63.3

Table 6 revealed that the pattern of tooth loss was such that the lower posterior teeth were the most frequently affected.

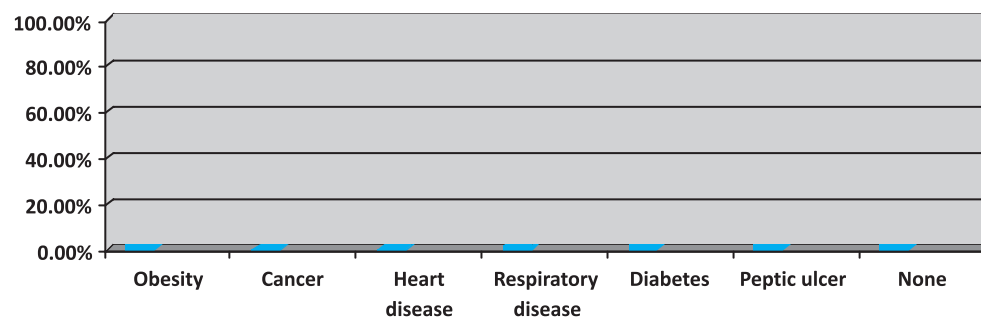


Figure 1: A column chart showing disorders diagnosed among respondents



Figure 2: A doughnut chart showing tooth brushing frequency



Figure 3: A pie chart showing alcohol consumption among subjects

All the subjects have visited the dentist. Routine check-up is the reason in 5 (1.3%), mobile tooth in 60 (15.6%), pain in 70 (18.2%), bleeding gum in 56 (14.6%), dental caries in 165 (43.0%), inability to chew in 70 (7.0%) and other reasons in 1 (0.3%). Most of the research subjects (286; 74.5%) have poor oral hygiene.

A few (58; 15.1%) have good oral hygiene. The oral hygiene is fair in 40 (10.4%).

More than half of the respondents (59.4%) feel their general health status is good; 29.7 feel they have a very good health status; 5.5% claim they have bad health status and another 5.5% claim they have very bad health status. It was noted that 46.3% admitted that tooth loss is a common family trend while 56.4% denied that fact. Tobacco product is taken in by 39.3% while 60.7% denied taking such products. Soft drinks and soda is consumed by 74.7% of the respondents while 25.3% do not take such drinks. The claim by 20.8% of the respondents is that they rarely consume sweets and sugary food; 58.9% regularly and 20.3% sometimes consume such intakes.

The study revealed that gender, socioeconomic status, alcohol, cariogenic foods and bad oral hygiene are all associated with tooth loss among Deltans ($P < 0.05$). It was noted that tooth loss is not associated with family history and systemic disease ($P > 0.05$).

DISCUSSION

The study revealed that socioeconomic status is significantly associated with tooth loss among Deltans ($P < 0.05$). Ahlqvist *et al.* noted that a higher proportion of edentulous individuals and a lower number of remaining teeth in dentulous subjects have been found in low socio-economic classes and in groups with poor educational background³. Hessari *et al.* reported a high rate of edentulism among the less educated and people of a lower socio-economic status in Iran⁴. This study revealed that caries and periodontal disease are important predictors of occurrence of tooth loss, but at the tooth level, caries was more predominant cause of tooth loss in all age groups. Tooth loss in Nigerians has been significantly associated with dental caries and its sequelae¹. The present study revealed that a higher number of the subjects take sugary food and drinks regularly which made them susceptible to dental caries. This finding further supports the assertion of World Health Statistic Quart that the consumption of processed foods rich in sugars and fats constitutes an important risk factor for dental caries⁵.

Intra-oral examination revealed that over half of the extracted teeth were lower posterior teeth. This concurred with the findings of Etetafia and Okoro who noted that molars were lost more frequently than other teeth in the mouth². The non-self-cleansing morphology of the molars as well as the inaccessibility to cleaning can be said to have jointly predisposed them to caries

and subsequent extractions. Additionally, the aid of gravity may have encouraged food lodging around them more than their maxillary counterparts. In the present study, gender was seen as a factor that is significantly related to tooth loss. This result was consistent to that of the study of Hamasha *et al.* in their paper "Risk indicators associated with tooth loss in Jordanian adults" in the year 2000, which showed that females had more missing teeth compared to males⁶. Interestingly, Eke *et al.* revealed that smokers have twice the risk for gum disease compared with non-smokers⁷. However in the present study a good number of the subjects (60.7%) do not use tobacco products. This may be attributed to the fact that dental caries which is the leading cause of tooth loss is less associated with tobacco product. This study revealed that tooth loss phenomenon is not significantly associated with family history ($P > 0.05$) but there may be other variables like bad oral hygiene and eating habits in a family trend, which may predispose people to tooth loss.

The present study revealed that there is a significant association between alcohol usage and tooth loss ($P < 0.05$). This result is in line with Tazel *et al.* who revealed that alcoholics are more prone to have a number of oral health problems such as gingival infection, increased pocket depth and loss of attachment, caries and tooth loss⁸. Enberg *et al.* also corroborated by stating that alcohol contributes to periodontal diseases, caries and tooth loss⁹. In the present study, majority (74.5%) did not feel they have any problem with their oral cavity. The self-perceived oral health status and need for treatment are important factors that influence utilization of dental services. The low level of utilization of dental services suggests that people tend to overestimate their dental health and under estimate their need for care. Suominen-Taipale *et al.* however suggested that people who rated their oral and general health as poor were found to be at high risk of losing teeth¹⁰.

In this present study, there is no significant association between tooth loss and systemic disease ($P > 0.05$). This means that oral health and general health are not remarkably related. Burt *et al.*, stated that patterns of tooth loss vary among populations. Due to this disparity, some population groups may not show any significant association between tooth loss and systemic disease¹¹. The negative effect of cleaning the teeth with tooth brush once daily resulting in greater susceptibility to tooth loss was noted in the present study. This result is in line with Burt *et al.* who reported that other common risk factors associated with tooth loss are poor oral hygiene and perceived poor dental health¹¹.

CONCLUSION

The study revealed some significant risk factors associated with tooth loss namely; dental caries, periodontal disease, alcohol, gender, socio-economic status, oral hygiene practices and self-rated oral care.

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