

Tooth Loss Among Nigerians Treated in Teaching Hospitals: A National Pilot Study

Temitope A. Esan, BChD, FMCDs; Adeyemi O. Olusile, BDS, MSc; Michael A. Ojo, BDS, MDS; Christopher I. Udoeye, BChD, FMCDs; Elizabeth O. Oziegbe, BChD, FMCDs; Hector O. Olasoji, BSc, BChD, FMCDs

Abstract

Aim: The aim of this study was to identify the causes and patterns of tooth loss among Nigerian adults.

Background: Tooth loss continues to be a major problem in clinical dentistry and has received significant attention in everyday dental practice. In Nigeria there is a discernible lack of current data that would explain the reasons and patterns of tooth loss from its different geopolitical zones.

Methods and Materials: The reasons for tooth extractions during a period of 12 months were obtained from the hospital records of teaching and specialist hospitals in Nigeria's six geopolitical zones and the Federal Capital Territory (FCT). Data were analyzed using Statistical Package for the Social Sciences for Windows (SPSS) version 9.0.

Results: A total of 4,204 teeth were extracted from 3,431 patients. Of these teeth 52.4 percent were lost due to dental caries while 30.2 percent were removed because of periodontal disease, 5.0 percent were missing as a result of trauma, and 3.9 percent were impacted and required extraction. The remaining 8.5 percent were extracted for a variety of reasons such as orthodontic treatment, overeruption, neoplasms, supernumerary teeth, attrition, a cystic lesion, and hypoplasia. Dental caries was the most common diagnosis given for tooth loss in the South-South (79 percent), South-East (68 percent), North-East (47 percent), North-West (69 percent), and North-Central (35 percent) zones followed by periodontal disease. In contrast,



periodontal disease was the most common cause of tooth loss in the South-West zone (65 percent) and in the FCT (55 percent), followed by dental caries at 22 percent and 33 percent, respectively.

Conclusion: Although teeth were extracted based on a variety of diagnoses, dental caries was identified as the common reason cited for tooth loss in Nigeria and to a lesser extent periodontal disease. Also different reasons were given for tooth loss among the various geographical zones.

Clinical Significance: Tooth loss among Nigerians was attributed largely to dental caries and secondarily to periodontal disease. Both conditions can be prevented if diagnosed early enough and treatment is instituted in a timely manner.

Keywords: Tooth loss, extractions, dental caries, periodontal disease, Nigeria

Citation: Esan TA, Olusile AO, Ojo MA, Udoye CI, Oziegbe EO, Olasoji HO. Tooth loss among Nigerians treated in teaching hospitals: A National Pilot Study. *J Contemp Dent Prac* [Internet], 2010 October;11(5):017-024. Available from: <http://www.thejcdp.com/journal/view/volume11-issue5-esan>

Introduction

Tooth loss continues to be a major problem in clinical dentistry and has received significant attention in everyday dental practice.¹ In fact, tooth loss used to be considered an inevitable consequence of old age,² and a normal oral condition in the last three to four decades of one's life.

The two most common causes for tooth loss are severe dental caries and periodontal diseases.³ Numerous other reasons have been mentioned to include trauma, impaction, prosthetic consideration, supernumerary teeth, hypoplasia, orthodontic reasons, attrition, cystic lesion, and neoplasm.^{2,4}

The various sequelae of tooth loss have and still pose a great challenge to prosthodontists and general dental practitioners. The multifactorial etiology of tooth loss, partial or total, has been investigated on several fronts by various researchers worldwide.^{1,5,6}

In Nigeria, a number of researchers have studied the causes of tooth morbidity.^{3,4,7,8} In 1967, Sheiham⁹ determined that 98 percent of Nigerians were caries-free, inferring that tooth loss was due to reasons other than dental caries, such as periodontal disease. In 1975 Henshaw and Adenubi¹⁰ reported the prevalence of periodontal disease in their study population to be 53.7 percent in females and 62.1 percent in males. Around that same time period, Okoisor³ found that periodontal disease and dental caries (to a lesser extent) were the two major reasons given for teeth being extracted.

Then in 1987, Odusanya⁴ discovered that tooth mortality due to dental caries had increased to 43.9 percent while that of periodontal disease had actually declined to 46.4 percent. He concluded

there was a progressive rise in dental caries incidence among Nigerians. He also recommended that studies should be conducted to determine the relative incidence of these two major diseases in Nigeria in view of the profound and widespread socioeconomic changes taking place in the country.

However, most of the studies^{3,4,7,8} carried out on tooth mortality in Nigeria, a vast country of over 150 million people, were sporadic and limited to teaching hospitals in the South-West zone, which is just one out of the six geopolitical zones and the Federal Capital Territory in the country. Furthermore each zone is characterized by differences in the culture and the language of the people. Therefore, the results of these studies^{3,4,7,8} may not necessarily be representative of the entire nation.

The lack of research on the causes of tooth loss from the six geopolitical zones of the country and the Federal Capital Territory made a pilot study imperative.

Also, an increase in the number of dental specialists and the areas of specialization in Nigeria over the years have led to improvements in oral health care delivery in the country. However, specialists are still mostly concentrated in the South-West zone.⁸ And thanks to the incorporation of oral health services into the local and state government health care delivery systems across the country, the level of oral health care delivery has improved.¹¹ Improvements such as this also might have positively impacted a change in oral disease patterns among Nigerians.

Considering the dietary and lifestyle changes borne out of a transition to a westernized culture and the progressive rise in the caries rate noted in previous studies,^{3,4} more contemporary research is needed to evaluate this rising trend in dental caries.

Therefore, this study was undertaken to identify the causes of tooth loss among Nigerian adults with three objectives: (1) to determine if there is any change in trend of the causes of tooth loss, (2) to prepare prosthodontists, general practitioners, and other health care providers to provide treatment to replace missing teeth, and (3) to serve as a starting point for the development of intervention programs by government agencies and policy makers to reduce, if not eliminate, the causes of tooth loss.

Methods and Materials

This investigation was a prospective study conducted over a 12-month period. During this year the reasons for tooth removal and the type of teeth extracted were obtained through a structured questionnaire. The study involved the oral surgery clinics in the teaching and specialist hospitals in the six geopolitical zones and the Federal Capital Territory of Nigeria (Table 1). The research protocol used was approved by the ethics committee of each facility before the study was undertaken.

For every patient scheduled for extraction, information such as age, gender, type and number of teeth removed, and the definitive diagnosis for the extractions were recorded in the questionnaire by the attending oral surgeon. Extracted tooth type was annotated using the Federation Dentaire Internationale (FDI) two-digit tooth numbering system. Teeth extracted for more than one reason were excluded from the study.

Data were analyzed using Statistical Package for the Social Sciences for Windows (SPSS) version 9.0 (SPSS Inc., Chicago, Illinois, USA) using a 5 percent significance level ($p < 0.05$). The analyses used included frequency, cross tabulations, and calculation of means. The association between discrete variables was analyzed using the chi-square test.

Results

Adults who attended one of the seven participating dental hospitals and met the inclusion

criteria for extraction in one of the six geopolitical zones and the FCT were included in the study.

The Study Population

A total of 3,431 patients were included, of whom 1,868 (54.4 percent) were females and 1,563 (45.6 percent) were males. The fact that more females lost their teeth as compared to their male counterpart during the period of the study was found to be statistically significant ($p = 0.000$). The patients ranged in age from 17 to 90 years with the mean age for all patients being 33.8 ± 14.35 years (Table 2).

In the southern part of the country and the Federal Capital Territory, more females lost their teeth than males, whereas more males lost their teeth than females in all the zones in the northern part of the country with the exception of the North-West zone (Table 2).

Finding among the Study Patients

Dental caries was the most frequent diagnosis given for extraction (58.26 percent) among both the male and female patients, followed by periodontal disease (26.99 percent). After dental caries and periodontal disease, the values dropped dramatically with trauma (4.52 percent) and impaction (4.46 percent) each accounting for less than 5.0 percent of the diagnoses during this study period. It was noteworthy that trauma was the third most frequent reason given for tooth loss in males (6.9 percent) whereas impaction (5.2 percent) ranked third for female patients (Table 3). The remaining 5.7 percent of the cases were attributed to diagnoses such as orthodontic treatment, hypoplasia, supernumerary teeth, cysts, and neoplasm (Table 3).

Table 1. Identification of the facilities for each of the six geopolitical zones and the Federal Capital Territory in Nigeria participating in the study.

Facility	Zones and FCT
Obafemi Awolowo University Teaching Hospitals Complex (OAUTHC)	South-West
University of Benin Teaching Hospital (UBTH), Benin City	South-South
University of Nigeria Teaching Hospital (UNTH) Enugu	South-East
Othman Danfodio University Teaching Hospital (ODUTH), Sokoto	North-West
Bayero University Teaching Hospital (BUKTH), Kano	North-Central
Maiduguri Teaching Hospital (UMTH), Maiduguri	North-East
Gwagwalada Specialist Hospital, Abuja	Federal Capital Territory

Table 2. Gender and mean age distribution by geographic zones.

Zone	Total No.	Male		Female		Mean Age
		No.	%	No.	%	
South-West	573	270	47.1	303	52.9	36.2 ±16.50
South-South	903	391	43.3	512	56.7	33.4 ±14.85
South-East	493	171	34.7	322	65.3	32.2 ±13.90
North-West	274	123	44.9	151	55.1	31.5 ±11.77
North-Central	243	142	58.4	101	41.6	41.0 ±14.72
FCT	650	308	47.4	342	52.6	30.1 ±10.31
North-East	295	158	53.6	137	46.4	37.6 ±14.93
Total	3,431	1,563	45.6	1,868	54.4	33.8 ±14.35

$\Pi^2=50.707$, $df=6$, $p=0.000$

Table 3. Diagnoses given for tooth loss by gender.

Diagnoses		Gender		Total
		Male	Female	
Dental caries	No.	861	1,138	1,999
	%	55.1	60.9	58.26
Periodontal diseases	No.	431	495	926
	%	27.6	26.5	26.99
Trauma	No.	108	47	155
	%	6.9	2.5	4.52
Impaction	No.	56	97	153
	%	3.6	5.2	4.45
Orthodontic reasons	No.	11	18	29
	%	0.7	1.0	0.85
Overeruption	No.	27	8	35
	%	1.7	0.4	1.02
Neoplasm	No.	5	7	12
	%	0.3	0.4	0.35
Supernumerary	No.	17	10	27
	%	1.1	0.5	0.79
Attrition	No.	17	14	31
	%	1.1	0.7	0.9
Cystic Lesion	No.	14	13	27
	%	0.9	0.7	0.79
Hypoplasia	No.	16	21	37
	%	1.0	1.1	1.08
Total	No.	1,563	1,868	3,431
	%	45.6	54.4	100.00

Also, as the patients' age increased, fewer teeth were extracted due to dental caries, but a slight increase was noted for patients older than 66 years old (Table 4). However, more teeth were extracted due to periodontal disease as the age group increased. Tooth loss due to trauma and impaction was highest in the second decade of life but declined as the patients increased in age (Table 4).

Findings for the Teeth Extracted

In all, 4,204 teeth were extracted during the study period with 52.4 percent of those teeth extracted due to dental caries, 30.2 percent taken out

because of periodontal disease, 5.0 percent lost due to trauma, and 3.9 percent removed due to impaction. The remaining 8.5 percent of the teeth were extracted for one of the following reasons: hypoplasia, supereruption, orthodontic treatment, supernumerary, and pathology (Table 5).

Findings by Geopolitical Zone

Differences were noted in the diagnoses given for tooth removal among the different geopolitical zones. For example, in the South-West zone and FCT, periodontal disease was the most common cause of tooth loss, followed by dental caries. Conversely, in the South-South, South-East,

North-East, North-West, and North-Central zones, dental caries was the most common cause of tooth loss, followed by periodontal disease. However, trauma was the third most common cause of tooth loss in all seven zones (Table 6).

Permanent versus Primary Teeth

Of those 4,204 teeth extracted over this period, 4,178 (99.4 percent) were permanent teeth, while 26 (0.6 percent) were deciduous teeth. Out of the

permanent teeth, the mandibular teeth accounted for 2,407 (57.6 percent) of the extractions, compared to 1,771 teeth (42.4 percent) removed from the maxillary arch (Figures 1 and 2).

Among the permanent teeth, the most frequently extracted tooth was tooth number 46, the mandibular right first molar (10.12 percent); followed by tooth number 36 (8.81 percent), the mandibular left first molar; and then tooth number

Table 4. Diagnoses given for tooth loss by age group.

	Age Groups															
	17-25		26-35		36-45		46-55		56-65		66-75		>75		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Caries	832	63.90	610	62.5	282	57.79	166	53.90	64	29.49	33	31.13	12	35.29	1,999	58.26
Periodontal Disease	289	22.20	228	23.36	142	29.10	95	30.84	102	47.00	50	47.17	20	58.82	926	26.99
Trauma	62	4.76	48	4.92	17	3.48	14	4.55	9	4.15	5	4.72	0	0	155	4.52
Impaction	70	5.38	61	6.25	17	3.48	3	0.97	2	0.92	0	0	0	0	153	4.46
Orthodontic	18	1.38	8	0.82	2	0.41	1	0.32	0	0	0	0	0	0	29	0.85
Overeruption	1	0.08	0	0	0	0	7	2.27	14	6.45	11	10.38	2	5.88	35	1.02
Neoplasm	0	0	0	0	5	1.02	3	0.97	2	0.92	2	1.89	0	0	12	0.35
Supernumerary	11	0.84	10	1.02	6	1.23	0	0	0	0	0	0	0	0	27	0.79
Attrition	0	0	0	0	3	0.61	11	3.57	16	7.37	1	0.94	0	0	31	0.90
Cystic Lesion	1	0.08	0	0	8	1.64	8	2.60	6	2.76	4	3.77	0	0	27	0.79
Hypoplasia	18	1.38	11	1.13	6	1.23	0	0	2	0.92	0	0	0	0	37	1.08
Total	1,302	37.9	976	28.4	488	14.2	308	9.0	217	6.3	106	3.1	34	1.0	3,431	100.0

Table 5. Diagnoses given for each tooth loss.

Diagnosis	Number	Percentage (%)
Dental caries	2,202	52.4
Periodontal disease	1,268	30.2
Trauma	212	5.0
Impaction	169	3.9
Orthodontics	39	0.9
Supereruption	96	2.3
Neoplasm	12	0.3
Supernumerary	35	0.8
Attrition	71	1.7
Cystic Lesion	63	1.5
Hypoplasia	44	1.0
Total	4,204	100

Table 6. Diagnoses given for tooth loss by location.

	Age Groups														Total	
	South-West	%	South-South	%	South-East	%	North-West	%	North-Central	%	FCT	%	North-East	%		
Caries	151	22.04	821	79.24	449	68.24	219	69.08	134	34.54	239	33.47	189	46.55	2,202	52.38
Periodontal Disease	446	65.11	113	10.91	162	24.62	49	15.46	56	14.43	391	54.76	51	12.56	1,268	30.16
Trauma	44	6.42	43	4.15	22	3.34	29	9.15	15	3.87	38	5.32	21	5.17	212	5.04
Impaction	21	3.07	39	3.76	6	0.91	9	2.84	26	6.70	37	5.18	24	5.91	162	3.85
Orthodontic	15	2.19	12	1.16	—	—	5	1.58	2	0.52	1	0.14	4	0.96	39	0.93
Overeruption	—	—	1	0.10	—	—	—	—	56	14.43	—	—	39	9.61	96	2.28
Neoplasm	5	0.73	—	—	—	—	—	—	4	1.03	—	—	3	0.74	12	0.29
Supernumerary	3	0.44	5	0.48	1	0.15	5	1.58	11	2.84	2	0.28	8	1.97	35	0.83
Attrition	—	—	—	—	—	—	1	0.32	40	10.31	—	—	30	7.39	71	1.69
Cystic Lesion	—	—	2	0.19	—	—	—	—	33	8.51	—	—	28	6.89	63	1.49
Hypoplasia	—	—	—	—	18	2.63	—	—	11	2.84	6	0.84	9	2.22	44	1.05
Total	685	16.29	1,036	24.64	658	16.29	317	7.54	388	9.23	714	16.98	406	9.66	4,204	100.00

47 (7.71 percent), the mandibular right second molar, as shown in Figure 2. The permanent canines were the least extracted teeth. In the primary dentition, retained deciduous maxillary canines were the most extracted teeth (Figures 3 and 4).

Discussion

Tooth mortality still poses a great challenge to Africa. Earlier studies^{3,4,7,8} on the patterns and causes of tooth loss have been local and regional. None of these studies was able to take into

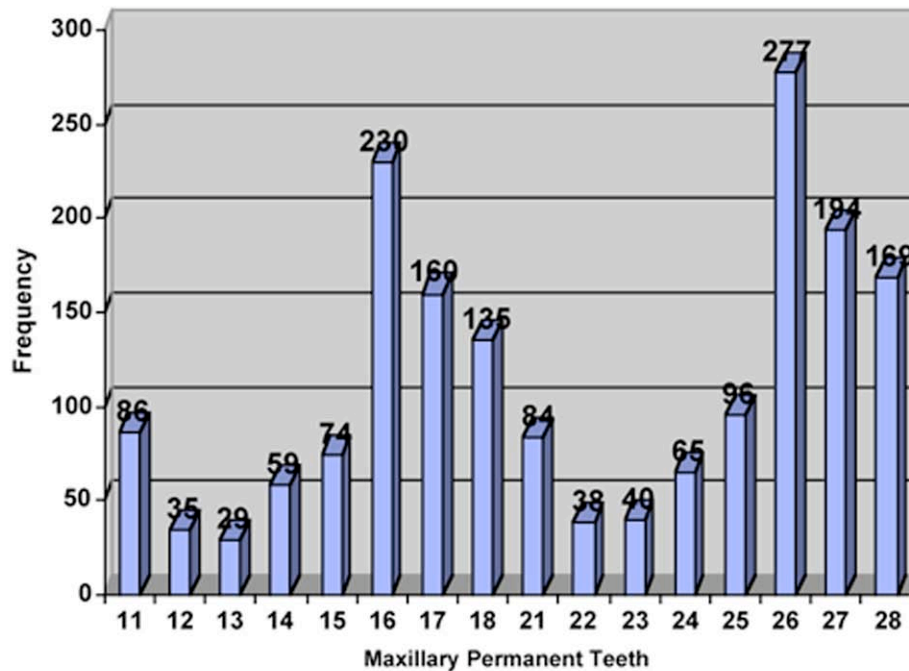


Figure 1. Distribution of permanent tooth loss in the maxillary arch.

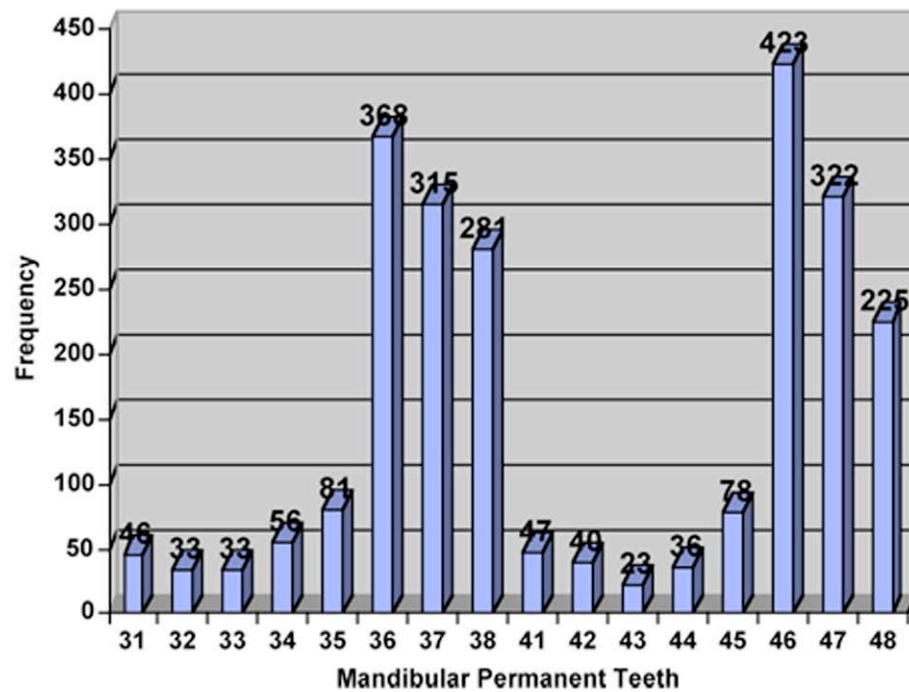


Figure 2. Distribution of permanent tooth loss in the mandibular arch.

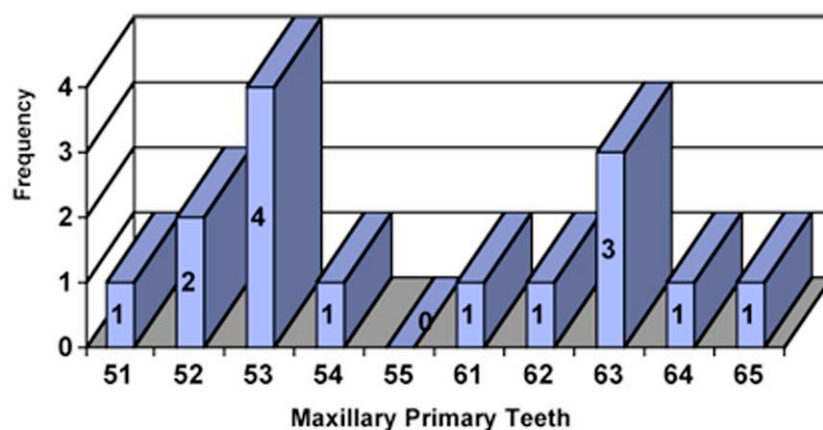


Figure 3. Distribution of primary tooth loss in the maxillary arch.

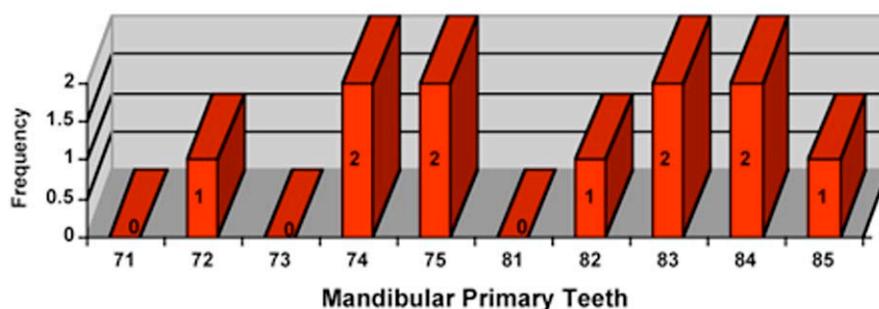


Figure 4. Distribution of primary tooth loss in the mandibular arch.

consideration the various ethnic components or Africa's diverse cultural differences.

This study revealed the pattern of oral health diseases in Nigeria taking the above into consideration. However, the study design (a structured survey) had inherent limitations compared to a longitudinal and descriptive, cross-sectional study of the entire Nigerian population where broader generalizations could be made from the findings. Nevertheless, the present study has demonstrated that the major causes of tooth loss among Nigerians, in general, are still dental caries and periodontal disease, in that order. Furthermore, these findings are consistent with previously published reports.^{3,4,12,13}

Previously published reports^{3,4,7,8,14} on the causes of tooth mortality among Nigerians and other Africans confirmed the fact that periodontal disease and, to a lesser extent, dental caries were the two major causes for tooth removal. In fact, Sheiham⁹ found out that 98 percent of Nigerians were caries-free, while Henshaw¹⁵ and Okoisor³ noted a progressive increase in the incidence of dental caries. Odusanya⁴ reported that 43.9

percent of the patients lost their teeth as a result of dental caries.

Leading Reasons for Tooth Loss

However, in the present study extractions due to dental caries were found to account for 52.4 percent of total tooth loss, while periodontal disease was responsible for 30.2 percent for all patients (Table 5). These outcomes are in sharp contrast to earlier studies^{3,4,7,8} conducted in Nigeria. Nonetheless, several decades ago two authors^{3,4} did warn that dental caries were rapidly increasing in Nigeria. Also, this changing pattern confirms the thinking of Odusanya,⁴ who, in 1987, stated that an "obvious trend seems to be a progressive elevation in dental caries incidence among Nigerians."

The rapidly increasing literacy rate coupled with expansion in urbanization and an ever-increasing Western influence have led to a change in diet and lifestyle without appropriate dental facilities and dental education to combat the resultant effects these changes are having on oral health.¹⁶

Variations in Outcomes by Zone

Variations in the causes for tooth loss were noted

in the different geographical zones of Nigeria. Periodontal disease was found to be the main cause of tooth loss in the South-West and the FCT zones. This finding was in keeping with other studies conducted in the South-West zone.¹⁷ The similarity between the South-West and the FCT zones cannot be explained by any cultural, dietary, or geographical factors. However, over 70 percent of specialists in restorative dentistry in Nigeria are concentrated in these locations, which could have a substantial effect on tooth mortality due to dental caries.

There is a need for treatment of patients with existing periodontal pockets and gingival recession; unfortunately, there are fewer than 10 periodontists in all of Nigeria. Such a limitation makes access to specialized periodontal care both difficult and expensive. This situation may account for the high tooth loss for periodontal reasons.

But the fact remains that dental caries was found to be a leading cause of tooth loss in all other zones. This may be attributed to the dietary pattern of the citizens in these areas, where sugar consumption is high. A poor attitude and lack of awareness of preventive dental practices, coupled with limited access to specialized restorative and preventive dental services, also may have contributed to the high rate of tooth loss due to dental caries in these zones. Gender differences were noted as well. More female patients lost their teeth for various reasons than their male counterparts in the North-Central and the North-East geographical zones.

Tooth Loss by Age Group

Tooth mortality was highest in the second decade of life, followed by the third decade (Table 4). But in the fourth decade, a decline in tooth loss was noticed in all the centers. This pattern also was seen in each of the geographical zones. Furthermore, this finding was consistent with the results reported by Odusanya,¹⁸ who found tooth loss to be highest in the second decade of life, followed by the third decade.

Also tooth loss due to dental caries peaked in the second decade of life and began to decline at the third decade (Table 4). Interestingly, a slight increase in tooth loss arising from dental caries was noted in the seventh decade of life. Although Odusanya's study¹⁸ included children below the age of 17, he noticed that dental caries peaked

in the first decade of life and, thereafter, a gradual decline occurred.

Most Frequently Extracted Teeth

Among the permanent teeth, the mandibular right first molar was the tooth most frequently extracted. This may suggest early exposure of the tooth to a highly cariogenic diet resulting in early colonization of the fissures primarily by *Streptococcus mutans*.¹⁹ The early eruption of the mandibular first molar, its prolonged exposure in the oral cavity, and the effects of gravity are possible reasons for this tooth's vulnerability to dental caries. The mandibular permanent canine was the least frequently extracted tooth.

Conclusion

Based on the parameters used in this study, the following conclusions were drawn:

1. A change in pattern and causes of tooth loss in Nigeria was noted, with dental caries being the principal causative factor.
2. The two major reasons for the extraction of teeth among Nigerians were dental caries and periodontal diseases, in that order, and both conditions are preventable.
3. If diagnosed early, teeth with dental caries and periodontal disease can be treated and retained, which could then reduce the number of teeth extracted among Nigerian citizens each year.

Clinical Significance

Tooth loss among Nigerians was attributed largely to dental caries and periodontal disease, and both conditions can be prevented if diagnosed early enough and treatment is instituted in a timely manner.

References

1. Carlsson GE, Omar R. Trends in prosthodontics. Med Princ Pract. 2006; 15(3):167-79.
2. Müller F, Naharro M, Carlsson GE. What are the prevalence and incidence of tooth loss in the adult and elderly population in Europe? Clin Oral Implants Res. 2007; 18 Suppl 3:2-14.

3. Okoisor FE. Tooth mortality: a clinical study of causes of loss. Nig Med J. 1976; 7:77-81.
4. Odusanya SA. Tooth loss among Nigerians: causes and pattern of mortality. Int J Oral Maxillofac Surg. 1987; 16(2):184-9.
5. Ong G. Periodontal disease and tooth loss. Int Dent J. 1998 48(3 Suppl 1):233-8.
6. Creugers NH. [Etiology of missing teeth]. Ned Tijdschr Tandheelkd. 1999 106(5):162-4.
7. McGregor IDM. The pattern of tooth loss in a selected population of Nigerians. Arch Oral Biol. 1972; 17:1573.
8. Adenubi JO. Extractions of deciduous molars in pre-school and school children in Lagos. Nig Med J. 1974; 4:251-5.
9. Sheiham A. The prevalence of dental caries in Nigerian population. Br Dent J. 1967; 123:144-8.
10. Henshaw NE, Adenubi JO. Periodontal disease in the northern zone of Nigeria. Nig Med J. 1975; 5:152-9.
11. Folayan MO, Otuyemi OD, Esan TA, Adeleke AA, Adedigba MA. Pattern of dental extraction in children in a Nigerian tertiary hospital. J Contemp Dent Pract. 2005; 6(2):80-90.
12. Brekhus PJ. Dental disease and its relation to the loss of human teeth. J Amer Dent Assoc 1929; 16:2237-47.
13. Allen EF. Statistical study of primary causes of extraction. J Dent Res. 1944; 23:453-8.
14. McGregor AB. Dental condition in Ghana. W.H.O.; 1962.
15. Henshaw NE. A survey of dental caries and oral hygiene in the southern zone of Nigeria. Nig Med J. 1974; 4:185-96.
16. Esan TA, Olusile AO, Akeredolu PA, Esan AO. Socio-demographic factors and edentulism: the Nigerian experience. BMC Oral Health. 2004; 4(1):3.
17. Taiwo JO, Omokhodion F. Pattern of tooth loss in an elderly population from Ibadan, Nigeria. Gerodontology. 2006. 23(2):117-22.
18. Odusanya SA. Age and sex distribution of tooth mortality among Nigerians. West Afr J Med. 1989; 8(1):50-3.
19. Akpata ES. Oral health in Nigeria. Int Dent J. 2004; 54(6 Suppl 1):361-6.

About the Authors

Temitope A. Esan, BChD, FMCDS (Corresponding Author)



Dr. Esan is a senior lecturer/consultant in removable prosthodontics in the Department of Restorative Dentistry, Faculty of Dentistry, College of Health Sciences, Obafemi Awolowo University, Ile-Ife, Nigeria.

e-mail: esantemitope@yahoo.com

Adeyemi O. Olusile, BDS, MSc



Dr. Olusile is a professor/consultant in fixed prosthodontics in the Department of Restorative Dentistry, Faculty of Dentistry, College of Health Sciences, Obafemi Awolowo University, Ile-Ife, Nigeria.

e-mail: aolusile@oauife.edu.ng

Michael A. Ojo, BDS, MDS



Dr. Ojo is a professor/consultant in oral pathology in the Department of Oral Pathology, Faculty of Dentistry, University of Benin, Benin City, Nigeria.

e-mail: maoj@yahoo.com

Christopher I. Udoe, BChD, FMCDS



Dr. Udoe is a senior lecturer/consultant prosthodontist in the Department of Restorative Dentistry, Faculty of Dentistry, University of Nigeria, Nsukka, Nigeria.

e-mail: udoye432@yahoo.co.uk

Elizabeth O. Oziegbe, BChD, FMCDS



Dr. Oziegbe is a lecturer/consultant pedodontist in the Department of Child Dental Health, Faculty of Dentistry, College of Health Sciences, Obafemi Awolowo University, Ile-Ife, Nigeria.

e-mail: elioziegbe@yahoo.com

Hector O. Olasoji, BSc, BChD, FMCDS



Dr. Olasoji is an associate professor/consultant oral and maxillofacial surgeon, Department of Maxillofacial Surgery, Faculty of Dentistry, University of Maiduguri, Maiduguri, Nigeria.

e-mail: Soji273@yahoo.com