

# Utilization of Teeth Replacement Service Among the Elderly Attending Teaching Hospitals in Lagos, Nigeria

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## Abstract

**Background:** Tooth replacement service is generally available in our environment. However, its utilization by the elderly has not been extensively studied. **Aim:** To determine the utilization of tooth replacement services among the elderly. **Materials and Methods:** This was a retrospective study of 440 patients aged 60 years and above attending the prosthetic out-patient clinics of Lagos University teaching hospital (LUTH) and Lagos state University teaching hospital (LASUTH) from January, 2008 to March, 2010. record books or case records: Age, sex, and number of teeth replaced. Results were collated and analyzed using Epi Info 2004. Values were presented as simple percentages. **Results:** There were 229/440 (52.0%) males and 211/440 (48.0%) females and were aged 60-90 years with a mean age of 68.9 (6.92). A total number of 4,062 teeth were replaced. Average number of tooth replaced among the patients was 9.45 for LUTH and 8.94 for LASUTH. The maxillary anterior teeth were the most frequently replaced 1422/4062 (35.0%) and the least replaced were the mandibular posterior teeth 812/4062 (20.0%). The average number of teeth replaced generally increased with age in both sexes. A total of 90 complete maxillary and mandibular dentures were fabricated, while six single arch complete dentures were made. The remaining were partial dentures. **Conclusion:** The most common age of presentation is 60-65 years. Patients that were 90 years and above appear to utilize teeth replacement facilities in this environment less than those in developed countries. Maxillary anterior teeth were the most frequently replaced.

**Keywords:** Elderly, Tooth replacement, Type of prosthesis/dentures

## Introduction

Teeth play an important role in the maintenance of a positive self-image.<sup>[1]</sup> Replacement of lost teeth has been documented to be the most common reason for attendance in the prosthetic out-patient clinic of Lagos university teaching hospital (LUTH).<sup>[2,3]</sup> The adverse effect of tooth loss without replacement includes, drifting and tilting of adjacent teeth,

rotation of teeth, over eruption, loss of contact area with formation of food traps. Others are faulty speech, changes in appearance and adverse psychological changes.<sup>[4]</sup>

The loss of teeth can be very traumatic and upsetting and could be regarded as a serious life event that requires social and psychological readjustment.<sup>[5,6]</sup> In most developed countries, the accepted chronological age of the elderly people is 65 years, as a definition of the United Nations standard numerical criterion of 60 + years.<sup>[7]</sup> The elderly are therefore more prone to tooth loss since the likelihood of tooth loss increases with age as a result of the cumulative effects of caries, periodontal disease, trauma and dental treatment. It has also been noted that elderly people with poor oral health status leading to edentulousness, have problems with social situations and interpersonal contacts, which can lead to depression and affect their general well-being.<sup>[8]</sup> The negative impact of

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poor oral conditions on daily life is particularly significant among the elderly edentulous people. A study done among community-dwelling elderly people aged 70-75 years in Italy noted that there was a close relationship between dental status and nutrient intake.<sup>[9]</sup>

Periodontal disease is a major cause of tooth loss in the elderly in Nigeria.<sup>[10]</sup> Macgregor<sup>[11]</sup> noted that the degree and pattern of permanent tooth loss in Nigerians was markedly different from the developed countries. He stated that tooth mortality in Nigeria was found to be very much less than in England and that early loss of incisor teeth was common amongst Nigerians, which may be probably due to periodontal disease.

The main purpose of replacement of missing teeth is to restore or improve appearance, ability to masticate, improve speech and to maintain the oral tissues in a healthy condition.<sup>[12]</sup> Teeth replacement options in Nigeria include over dentures, removable acrylic based dentures, implants and teeth supported (fixed) prosthesis. Fixed prostheses, though excellent options are quite expensive and may not be affordable options for most Nigerians.<sup>[12]</sup>

In a study done among older adult living in Japan, the percentage of utilization of tooth replacement services was stated to be 68.2%.<sup>[12]</sup> Basse<sup>[13]</sup> in a study on oral health needs, among geriatric patient in a tertiary hospital in Nigeria reported the utilization of tooth replacement services as 29.6%. However, this study was conducted in one tertiary hospital more than two decades ago, and only for a year. Akeredolu<sup>[14]</sup> in 2004 did a study in LUTH on anterior teeth replacement and noted an increase in tooth replacement among the elderly. The evident socio-economic and demographic changes noted in Nigeria since the time of these studies necessitated the need for a recent study. Therefore, this study was done to determine the pattern of replacement.

## Materials and Methods

This was a retrospective study of 440 patients aged 60 years and above attending the prosthetic out-patient clinics of LUTH and Lagos State University Teaching Hospital (LASUTH) from January, 2008 to March, 2010. The following information was retrieved from the patient's daily record books or case records: Age, sex, and number of teeth replaced. Results were collated and analyzed using Epi Info Version 3.5.1 (CDC, Atlanta, Georgia, USA). Values were presented as simple percentages.

## Results

In the daily record books, 440 cases of elderly patients were found during this period. All the cases were used with no exclusion. The average age was 68.9 (6.9) years. The most common age of attendance was 60-65 years [Table 1]. The least common age of attendance was 90 years and above [Figure 1].

Table 2 shows the number of tooth replaced by gender and age. The average number of tooth replaced was more in males (9.6) than in females (8.7).

A total of 90 complete maxillary and mandibular dentures were fabricated, while 6 single arch complete dentures were made [Table 3]. The least treatment to be requested was for lower complete dentures [Figure 2].

Majority 2917/4062 (71.8%) [Figure 3] of patients replaced 1-10 teeth [Table 4] out of which the upper anterior 1422/4062 (35%) were the most replaced [Figure 4]. The least replaced teeth was the mandibular posterior teeth 812/4062 (20%) [Table 5].

**Table 1: Age distribution of participants**

Age (years)	LUTH n (%)	LASUTH n (%)	Total N (%)
60-65	108 (24.6)	63 (14.3)	116 (38.9)
66-70	78 (17.8)	38 (8.6)	116 (26.4)
71-75	53 (12.1)	30 (6.8)	83 (26.4)
76-80	25 (5.7)	21 (4.8)	46 (10.5)
81-85	9 (2.1)	8 (1.8)	17 (3.9)
86-90	3 (0.6)	2 (0.5)	5 (1.1)
>90	2 (0.5)	0 (0.0)	2 (0.5)
Total	278 (63.2)	162 (36.8)	440 (100)

Mean age: 68.9

(Standard deviation: 6.9)

LUTH: Lagos university teaching hospital, LASUTH: Lagos state university teaching hospital

**Table 2: Teeth replacement in relation to age and sex**

Age range	Male			Female		
	Frequency	NTR	AV.TR	Frequency	NTR	AV.TR
60-65	77	576	7.48	94	697	7.41
66-70	63	571	9.06	53	419	7.91
71-75	46	529	11.50	37	381	10.30
76-80	30	335	11.17	16	186	11.63
81-85	7	96	13.71	10	135	13.5
86-90	5	92	18.40	0	0	0.00
>90	1	17	17.00	1	28	28.00
Total	229	2216	9.68	211	1846	8.75

AV.TR: Average teeth replaced, NTR: Number of teeth replaced

**Table 3: Replacement with complete denture**

Complete denture	LUTH n (%)	LASUTH n (%)	Total n (%)
Complete upper and lower	55 (57.2)	35 (36.5)	90 (93.7)
Upper complete	3 (3.2)	1 (1.0)	4 (4.2)
Lower complete	2 (2.1)	0 (0.0)	2 (2.1)
Total			96 (100.0)

LUTH: Lagos university teaching hospital, LASUTH: Lagos state university teaching hospital

**Table 4: Number of teeth replacement**

Number of teeth replaced	LUTH n (%)	LASUTH n (%)	Total n (%)
1-10	1659 (40.8)	1258 (31)	2917 (71.8)
11-20	179 (4.4)	97 (2.4)	276 (6.8)
>20	544 (13.4)	325 (8.0)	869 (21.4)
Total	2382 (58.6)	1680 (41.4)	4062 (100.0)

LUTH: Lagos university teaching hospital, LASUTH: Lagos state university teaching hospital

Table 6 shows the number of patients seen between year 2008 and 2010 in the two institutions and also the average number of tooth replaced in the patients. The average number of tooth replaced among the patients was 9.45 for LUTH and 8.94 for LASUTH.

**Table 5: Pattern of tooth replacement**

Segment	LUTH n (%)	LASUTH n (%)	Total n (%)
Upper anterior	778 (19.2)	644 (15.8)	1422 (35)
Upper posterior	533 (13.1)	320 (7.9)	853 (21)
Lower anterior	605 (15.0)	370 (9.1)	975 (24)
Lower posterior	466 (11.5)	346 (8.5)	812 (20)
Total	2382 (58.6)	1680 (41.4)	4062 (100)

LUTH: Lagos university teaching hospital, LASUTH: Lagos state university teaching hospital

## Discussion

In this study, the average age of presentation in both centers was between 68 and 69 years. The mean age was slightly higher than similar study carried out in Japan where the mean age was 66.5 years.<sup>[12]</sup> This Japan study did not represent all the population of the elderly in Japan as well as this study, which is not representing all the elderly in Nigeria. It might therefore be that patients in their 60's and above are aware of the availability of prosthetic services and are using such services.

In this study, the average tooth loss was higher in males than females. A similar finding to our study was reported by Akeredolu *et al.*<sup>[14]</sup> The reason for this was that males were

**Table 6: Average teeth replaced yearly**

Year	LASUTH			LUTH			TOTAL	
	N	NTR	AV.TR	Frequency	NTR	AV.TR	Frequency	NTR
2008	68	660	9.71	97	857	8.84	165	1517
2009	86	716	8.33	115	1081	9.4	201	1797
2010	34	304	8.94	40	444	11.1	74	748
Total	188	1680	8.94	252	2382	9.45	266	4062

LUTH: Lagos university teaching hospital, LASUTH: Lagos state university teaching hospital, NTR: Number of teeth replaced, AV.TR: Average teeth replaced

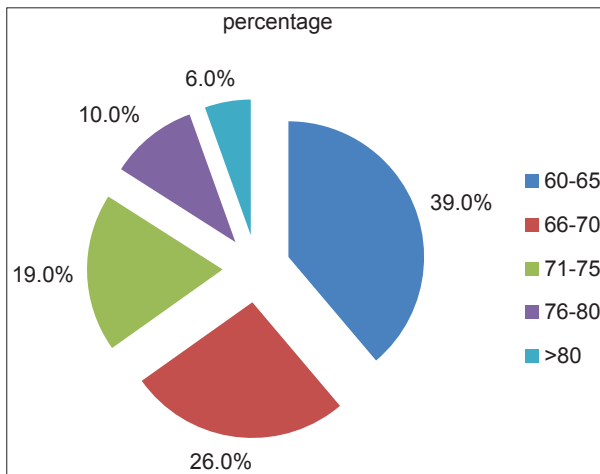


Figure 1: Age of presentation

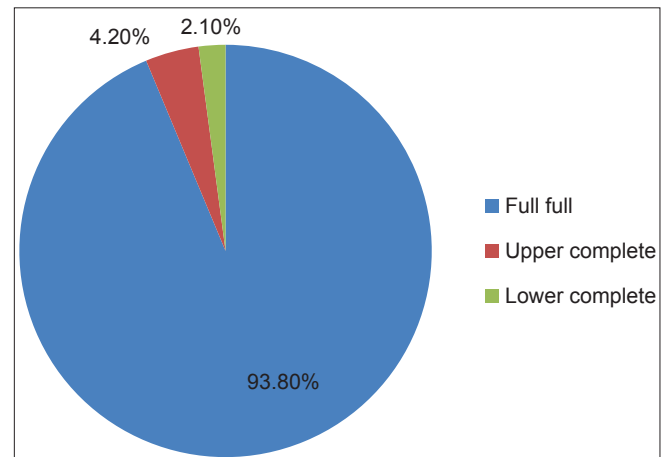


Figure 2: Demand for complete denture

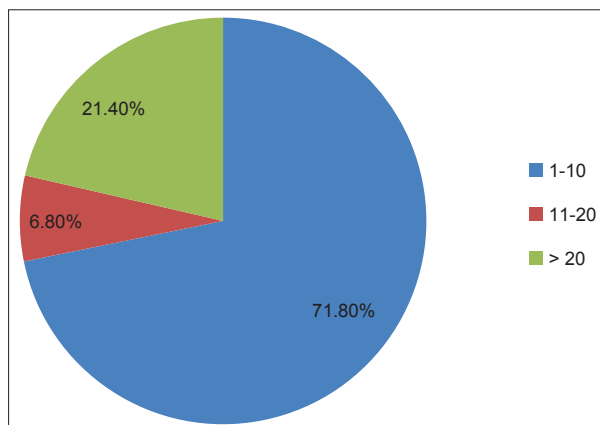


Figure 3: Number of teeth replaced

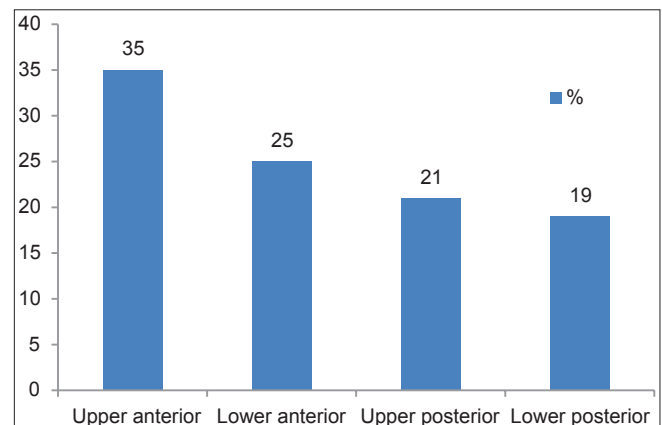


Figure 4: Pattern of teeth replacement

more prone to tooth trauma especially, in their earlier year. In the study carried out in Japan,<sup>[12]</sup> more males utilized tooth replacement facilities more than females. The reason for this was that males had more time after retirement to take care of their dental health, which had been neglected in earlier years when they worked long hours. It might be that the reason for our result may be due to the fact that responses to dental problems in males are delayed compared to females resulting in higher tooth loss, which invariably leads to more demand for replacement. It might also be as a result of accumulated adverse effect of tooth trauma such as that acquired in contact sports which is more common in males. This invariably has a positive effect on tooth replacement although, this might also be influenced by factors such as lack of finance, poor health, availability of prosthetic services, + and patients' awareness.

In this study, the average number of tooth replaced increased with age in both sexes. This is likely due to increase in tooth loss, which is as a result of cumulative effects of caries, periodontal disease, trauma, and dental treatment as age increases. In a study done by Idowu and Al-Shamrani<sup>[15]</sup> they reported similar finding of a steady increase in tooth loss with increase in age and this invariably leads to increase demand for replacement. In the study done by Akeredolu *et al.*<sup>[14]</sup> they noted a progressive increase in number of anterior tooth replaced with increase in age. Although, their study was done basically on anterior tooth replacement it is important to note that the highest number of teeth replaced in this population were that of anterior teeth. This is further corroborated with previous findings by Olushile and Esan.<sup>[16]</sup> Therefore, it can be that since the main reason for anterior teeth replacement is aesthetics, patients are becoming more concerned with their appearance even in the elderly. Studies have shown that aesthetics is one of the most important motivating factors for tooth replacement.<sup>[16,17]</sup> These studies observed that aesthetics might be the most important reason for demanding for removable prosthesis. It can therefore be that aesthetics is a major motivational factor to tooth replacement even in the elderly.

In this study, there was a gradual increase in teeth replaced from 2008 to 2009. In Bassey's<sup>[13]</sup> study, done 25 years ago the utilization of prosthetic service was 29.6%. There seem to be an increase in the utilization of teeth replacement. This might be due to an increase in awareness of patients or an improvement in prosthetic facilities. In view of this it could be that there is an increase in awareness of prosthetic rehabilitation leading to increase utilization of prosthetic services.

## Conclusion

The utilization of teeth replacement services was common between the age of 60 and 65 years. Aesthetics was found to be the major motivational factor for tooth replacement in the elderly.

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