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Pattern of Dental Treatment Rendered to Persons Aged 50 Years and Older in A Tertiary Hospital in Nigeria

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Abstract

Background/Objective: *Older persons and the elderly are a unique and vulnerable group of the population that suffers from oral diseases. This study sought to assess the pattern of dental treatment rendered to persons 50 years and older in a tertiary institution in Nigeria.*

Methodology: *This was a retrospective descriptive cross-sectional study of older and elderly persons who sought oral health care at a Nigerian dental clinic. The data of interest collated from the retrieved records were age, gender, diagnosis made and specialty involved in management of the oral health conditions. The patients were categorized based on their age*

Results: *233 patient records were utilized with the patients' age ranging from 50 years to 88 years and a mean age of 59.76±7.94 years. Above half, 56.7% (C.I 50.2-63.1) of the patients were aged 50 to 59 years. There was a higher proportion of female patients. A higher proportion of those less than 60 years of age had multiple diagnosis. The most prevalent diagnosis recorded was dental caries and its sequelae (35.2%), followed by periodontal disease (30.9%). The most prevalent treatment received by the patients was restorative treatment (59.7%) followed by periodontal treatment (39.5%) and oral surgical treatment (27.5%). There was no statistically significant association between the age group of the patients and type of diagnosis made and if the diagnosis was single or multiple (P>0.05).*

Conclusion: *Restorative treatment emerged as the primary type of treatment sought, indicating a shift towards positive measures of teeth retention.*

Keywords: *dental treatment, older persons, elderly*

Introduction

Aging is a natural process and old age should be regarded as a normal, inevitable biological phenomenon.[1] The proportion of older people continue to grow worldwide, especially among developing countries.[2,3] They are also a heterogenous population ranging from the healthy to the frail, highly educated to the illiterate, from the affluent to the poor and from the dentate to the edentulous.[4]

The elderly are a unique and vulnerable group of the population that suffers from oral diseases.[3,5] Poor oral health among the elderly have been particularly evident in high levels of tooth loss, dental caries, pain, infection, periodontal disease, xerostomia and precancerous/cancerous lesions.[2,3,6]

The dental needs of older persons and the elderly are changing and growing such that their management involves not just the medical and dental aspect of aging but factors such as ambulation, independent living, socialization, and sensory function.[7,8] Oral health is an important aspect of active aging and negative impact of poor oral condition on daily life is particularly significant in older adults.[2,9] This condition could result in reduced chewing performance, food selection, weight loss and social handicap.[4]

Decision making on what constitute an appropriate

care may vary from one individual to another, because the decision must put into consideration age-related and age-associated psychological, sociological, biological and pathological changes.[10] Different models have been suggested for planning oral health of older adults, one of such models is the OSCAR model, a systematic approach suggested for planning oral care for older adults and this was used to determine the needs specific to each patient.[11] Utilization of dental services is a function of patient perceived needs which has been considered an accurate predictor of utilization of dental services.[12]

With the development of medical technology and improvement in health lifestyles, the average life span of human beings seems to be on the increase. Like younger people, persons aged 50 and older also need oral health services, although it seems their needs are often overlooked or ignored. It has been suggested that studying the pattern of dental treatment rendered to older persons could help initiate preventive measures that would positively affect their quality of life.[13] Furthermore, the need for better elucidation and understanding of the health implications of ageing has been advocated.[2] Hence this study sought to assess the pattern of dental treatment rendered to persons 50 years and older in a tertiary institution in Nigeria.

Method

This was a retrospective descriptive cross-sectional study of older and elderly persons who sought oral health care at the dental clinic of the National Hospital Abuja. All dental clinic records of persons aged 50 years and above that received treatment at the dental clinic between July and December 2018 were retrieved.

The data of interest collated from the retrieved records were age, gender, diagnosis made and specialty involved in management of the oral health conditions. The patients were categorised based on their age into older adults (50 to 59 years) and elderly (60 years and above). For the purpose of analysis drug induced gingival hyperplasia, precancerous and cancerous lesions of the oral mucosa and salivary glands, lichen planus, oral candidiasis, infections of the oral mucosa and fascial spaces, aphthous ulcers, trigeminal neuralgia and TMJ disorders were classified as oral mucosa lesions. Bony exostosis, paramolar/ supernumerary teeth, osteomyelitis, oral habits such as bruxism, mandibular micrognathia, supra erupted teeth, retained deciduous and hypoplastic teeth were classified as other diagnosis.

All data was screened for completeness and analysed using IBM SPSS statistics for windows version 26.0 (IBM Corp. Armonk, N.Y., USA). The data collated was subjected to analysis using descriptive statistics. Chi square test was used to check for associations between variables where applicable with p set at 0.05.

Results

A total of 240 records were identified to belong to those 50 years and above, however 236 were retrieved giving a retrieval rate of 98.3%. However, 233 had the data of interest and were used for the study.

The patients' age ranged from 50 years to 88 years with a mean age of 59.76±7.94 years. There was no statistically significant different between the mean age of male patients (58.88±7.53 years) and that of the female patients (60.58±8.23years).

Above half, 56.7% (C.I 50.2-63.1) of the patients were aged 50 to 59 years while the remaining 43.3% (C.I 36.9-49.8) were 60 years and older. There was a higher proportion of female patients with females accounting for 51.5% (C.I 45.5-57.5) of the patients while 48.5% (C.I 42.5-54.5) were males.

Multiple diagnosis was recorded in 25.8% of the patients while single diagnosis was made in 74.2% of the patients. A higher proportion of those less than 60 years of age had multiple diagnosis with the odds of those less than 60 years of age having single diagnosis being 0.912 times the odds of those 60 years and older. However, this was not statistically significant (p=0.76). Similarly, a higher proportion of male patients received single treatment with the odds of a male patient receiving single treatment 1.104 times the odds of a female patient but this was not statistically significant (p=0.74) (Table 1)

Table1. *Association between age and gender and number of treatments received*

Characteristics	Number of treatments		Total
	Single	Multiple	
Age group			**P=0.76**
< 60 years	97 (73.5)	35 (26.5)	132 (100.0)
≥ 60 years	76 (75.2)	25 (24.8)	101 (100.0)
Gender			**P= 0.74**
Male	85 (75.2)	28 (24.8)	113 (100.0)
Female	88 (73.3)	32 (26.7)	120 (100.0)
Total	173 (74.2)	60 (25.8)	233 (100.0)

The most prevalent diagnosis recorded was dental caries and its sequelae (35.2%), this was followed by periodontal disease (30.9%) and fractured teeth (14.6%). Tooth loss and failed restorations were recorded in 6.4% and 10.3% of the cases respectively. The least recorded diagnosis was ill fitting dentures (3.4%) and dentine hypersensitivity (4.7%) (Figure 1)

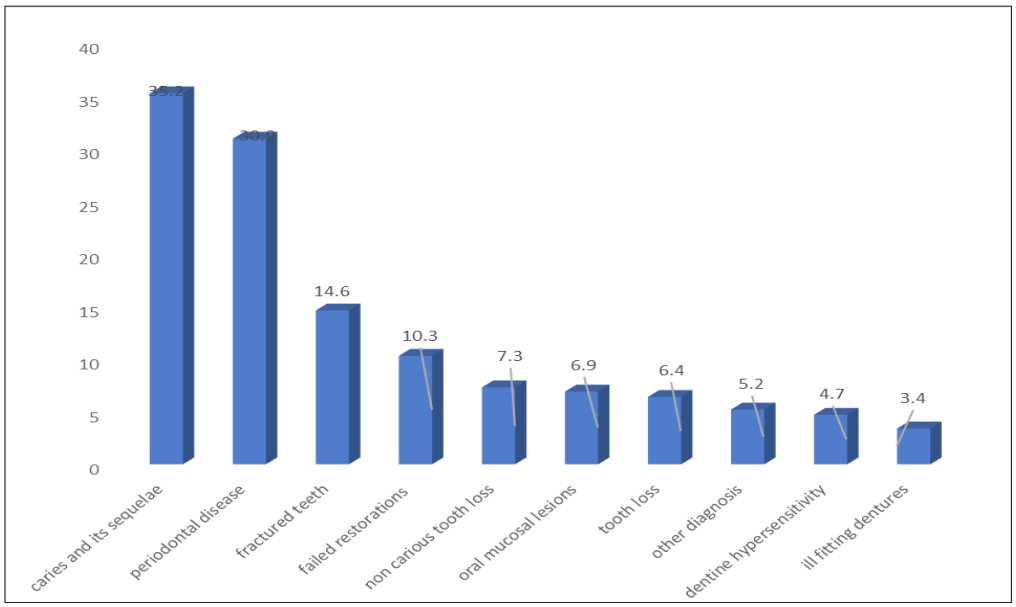

Fig1. *Pattern of diagnosis recorded for the patients.*

The most prevalent treatment received by the patients was restorative treatment (59.7%) followed by periodontal treatment (39.5%) and oral surgical treatment (27.5%). Figure 2)

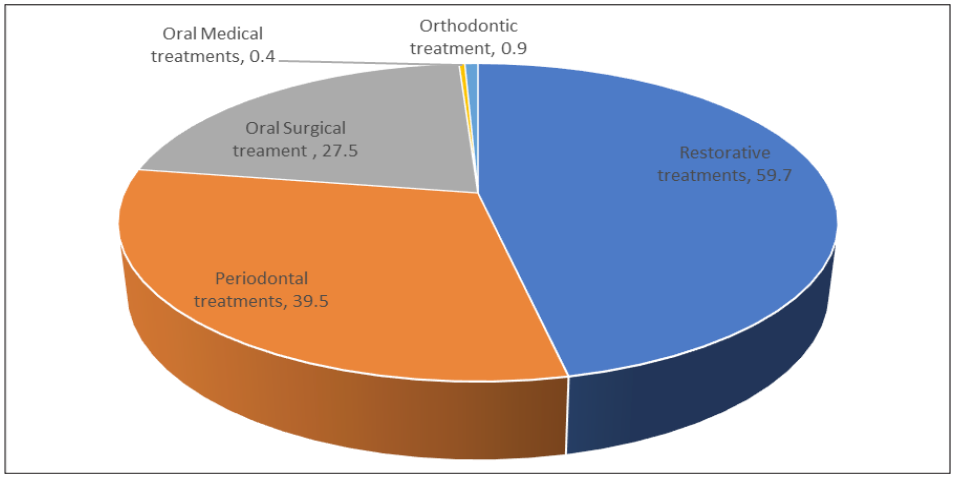

Fig2. *Pattern of treatment received by the patients.*

Various specialties were involved in the management of the patients with patients receiving treatment in a single specialty in 75.1% of the cases and treatment from multiple specialties in 24.9% of the cases. The highest proportion of treatment (38.2%) was received from restorative specialty as a single specialty followed by maxillofacial surgery only (18.5%) and periodontics only (18.0%). Treatment was received from periodontics and restorative combined in 15.9% of cases, periodontics and maxillofacial combined in 5.2% of cases and restorative and maxillofacial combined in 0.4% of cases (Table 2).

Table2. *Distribution of treatment rendered by specialties*

Specialty	Frequency	Percent	Confidence interval
Restorative only	89	38.2	31.8-44.2
Periodontics only	42	18.0	13.3-23.2
Maxillofacial surgery only	43	18.5	13.7-23.6
Periodontics and Restorative combined	37	15.9	11.2-20.6
Periodontics and Maxillofacial Surgery combined	12	5.2	2.1-8.2
Periodontics and Orthodontics combined	1	0.4	0.0-1.3
Restorative and Maxillofacial Surgery combined	8	3.4	1.3-6.0
Oral medicine only	1	0.4	0.0-1.3
Total	233	100.0	

There was no statistically significant association between the age group of the patients and type of diagnosis made and if the diagnosis was single or multiple (P>0.05). Similarly, there was no statistically significant association between the gender of the patients and type of diagnosis made and if the diagnosis was single or multiple (P>0.05).

A higher proportion of those aged 50 to 59 years received restorative treatment compared to those aged 60 years and older. The odds of receiving restorative treatment in those aged 50 to 59 years was 1.822 times the odds in those 60 years and older and this was statistically significant (P=0.03). Although, there was no statistically significant association between age group and receiving periodontal treatment (P=0.8), the odds of receiving periodontal treatment in those aged 50 to 59 years was 0.921 times the odds in those 60 years and older. A higher proportion of those aged 60 years and older received oral surgical treatment compared to those aged 50 to 59 years and this was statistically significant (P=0.006). The odds of receiving oral surgical treatment in those aged 50 to 59 years was 0.445 times the odds in those 60 years and older (Table 3).

A higher proportion of female patients received oral surgical treatment compared to male patients and this was statistically significant (P=0.04). The odds of receiving oral surgical treatment by male patients was 0.539 times the odds by female patients. Although there was no statistically significant association between gender and receiving restorative treatment (p=0.67) and periodontal treatment (p=0.21), the odds of receiving restorative treatment by males was 1.120 times the odds by females and the odds of receiving periodontal treatment by male patients was 1.371 times the odds by female patients (Table 3).

Table3. *Association between age group, gender and type of treatment received*

	Type of treatment received					
Characteristics	Restorative	Periodontal	Oral surgical	Oral medical	Orthodontic	Total
Age group	**P=0.03**	**P=0.8**	**P=0.006**	***P=0.25**	***P=0.21**	
50-59 years	87 (65.9)	51 (38.6)	27 (20.5)	0 (0.0)	2 (1.5)	132 (100.0)
≥60 years	51 (51.5)	41 (41.6)	37 (37.0)	1 (1.0)	0 (0.0)	101 (100.0)
Odds ratio	1.822	0.921	0.438	-	-	
Gender	**P=0.67**	**P=0.21**	**P=0.04**	***P=0.33**	***P=0.17**	
Male	69 (61.1)	49 (43.4)	24 (21.2)	0 (0.0)	0 (0.0)	113 (100.0)
Female	70 (58.3)	43 (35.8)	40 (33.3)	1 (0.8)	2 (1.7)	120 (100.0)
Odds Ratio	1.120	1.371	0.539	-	-	

*Fischer's Exact

Multiple treatments were received by the patients

There was no statistically significant association between the age group of the patient and the specialty/specialties ~~were~~ where treatment was received (p=0.118). Similarly, there was no statistically significant association between the gender of the patient and the specialty/specialties ~~were~~ where treatment was received (p=0.06) (Table 4).

Table4. *Association between age group, gender and specialty in which treatment was received*

Characteristics	Specialty that rendered treatment								Total
	Rest only	Perio only	Maxfac only	Perio & Rest	Perio & Maxfac	Perio &Ortho	Rest & Maxfac	Oral med Only	
Age group 50-59 years	57 (43.2)	23 (17.4)	20 (15.2)	24 (18.2)	4 (3.0)	**P=** 1 (0.8)	**0.118** 3 (2.3)	0 (0.0)	132 (100.0)
≥60 years	32 (32.0)	19 (19.0)	23 (22.8)	13 (12.9)	8 (7.9)	0 (0.0)	5 (5.00)	1 (1.0)	101 (100.0)
Gender Male	45 (39.8)	25 (22.1)	18 (15.9)	19 (16.8)	6 (5.3)	**P=0.06** 0 (0.0)	0 (0.0)	0 (0.0)	113 (100.0)
Female	44 (36.7)	17 (14.2)	25 (20.8)	18 (15.0)	6 (5.0)	1 (0.8)	8 (6.7)	1 (0.8)	120 (100.0)
Total	89 (38.2)	42 (18.8)	43 (18.5)	37 (15.9)	12 (5.2)	1 (0.4)	8 (3.4)	1 (0.4)	233 (100.0)

Rest= Restorative; Maxfac= Maxillofacial Surgery; Perio = Periodontics;

Ortho= Orthodontics; Oral Med = Oral Medicine.

Discussion

The current demographic analysis indicates that the elderly group is increasing worldwide. Increasing ageing life expectancy is premised on the advancement of healthcare facilities, improved economic standards and reduction in the preponderance of infectious and parasitic diseases.[14] The increased life expectancy translates to increased utilization of health care. In Nigeria, the situation is not different. Older people are at increased risk of chronic diseases of the mouth, like dental caries, periodontitis, tooth loss/edentulism, and oral mucosa lesions.[3,15]

The need to provide adequate dental care for the elderly has been established.[1,2] In this present study, we recorded about 6.4% tooth loss, indicative of increased tooth retention in this population. The improved oral hygiene prophylaxis measures and improved treatment options may account for this improvement. Our study also showed that more persons are seeking out tooth saving measures. Restorative dentistry department provided the highest single specialty treatment. Similarly, prophylactic, and curative treatment provided by periodontics department accounted for about 18% of single treatment. These measures are important in the overall health of dental hard and soft tissues and the retention of teeth.

Although our study reported no statistically significant association between the gender of the patients and type of diagnosis made, a higher proportion of female patients received oral surgical treatment compared to male patients. This result agrees with the reports of Taiwo et al,[16] who reported a slight female preponderance for oral surgical procedures Similar findings have also been reported by Saheeb and Sede.[17] Females also had increased odds of receiving periodontal treatment compared to men. This female predominance may be due to the better health-seeking behavior in females compared to males.[18]

Age distribution of the pattern of treatment sought was noted to be significant. Patients older than 60 years were 55% more likely to receive oral surgical treatment than adults within the age bracket of 50-59%. Conversely, adults below 60 were 82% more likely to seek restorative treatment than those above 60 years of age. This pattern of dental treatment is indicative of the wide range of dental diseases affecting this age group.[3,19] Efforts to save the teeth in this group must be constant, cohesive, and holistic. Reduced number of teeth leads to apparent lack of prophylactic measures. These efforts must stem the establishment of a mentality that proposes alternatives, with the hope of a mobile prosthesis that radically eliminates the absence of teeth.[20]

Conclusion

This present research aimed to investigate the pattern of dental treatment in the elderly. Restorative

treatment emerged as the primary type of treatment sought, indicating a shift towards positive measures of teeth retention. Improved dental technology and oral hygiene prophylaxis with attending consequence of improved oral health in the geriatric population, propose long term survival rates of geriatric dentition with a reduction in tooth mortality.

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