

Oral Health Needs of Elderly Persons Who Visited Dental Clinics in Nigeria

*Julie Omole OMO, *Joan Emien ENABULELE,

**Gloria AGBOGHOROMA

*Department of Restorative Dentistry, University of Benin, Nigeria

**Restorative Unit, Dental outpatient Department, National Hospital, Abuja, Nigeria

Correspondence

Dr. Julie O. Omo

Department of Restorative Dentistry

University of Benin

Nigeria

Email: julie.omo@uniben.edu

Received: 19th May, 2021

Revision: 1st June, 2021

Accepted: 9th June, 2021

ABSTRACT

Objective: To assess the differences in oral health care needs of the elderly who visited dental clinics in Nigeria.

Methods: This was a retrospective descriptive cross-sectional study of elderly persons (60 years and older) who received oral health care at the dental center of the University of Benin Teaching Hospital (UBTH), Benin City in Southern Nigeria and the dental clinic of the National Hospital Abuja (NHA), Federal Capital Territory in Northern Nigeria. The data of interest collated from the retrieved records were gender, age and diagnosis made. The patients were categorized based on their age into 60- 64 years (the new elderly), 65 -74 years (the transition group) and >75 years age group (the old elderly).

Results: The most prevalent treatment need of the patients was periodontal treatment (57.6%) followed by treatment for caries and its sequelae (40.2%). The least recorded treatment need was treatment for dentine hypersensitivity (2.2%) followed by ill-fitting denture (2.6%). Need for replacement of missing teeth was noted in 14.4% of the patients. Treatment needs related to replacement of missing teeth was not statistically significantly associated with gender. A higher proportion (46.2%) of the study population in the southern hospital required treatment related to caries and its sequelae compared to 30.0% in the FCT and this was statistically significant ($P=0.009$).

Conclusion: There is variation in the oral health care needs of the elderly based on age, gender, and socio-cultural differences.

Keywords: Elderly, Treatment needs, Periodontal Treatment

Julie O. Omo,

<https://orcid.org/0000-0002-5680-6922>

Joan E. Enabulele

<https://orcid.org/0000-0002-3799-9634>

Gloria Agboghroma

<https://orcid.org/0000-0002-9941-5622>

Citation: Omo JO, Enabulele JE, Agboghroma G. Oral health needs of elderly persons who visited dental clinics in Nigeria. *Nig J Periodontal Res* 2021; 2(2):51-57.

CLINICAL IMPLICATIONS

The elderly population are a unique set of people who need special attention to help them cope with challenges that comes with old age such as physical, emotional, psychological, and pathological changes. Ensuring their oral health is constantly in check would improve their quality of life and help them cope better with old age. This study emphasizes the major area of concern being their periodontal health

and dental caries. Periodontal disease has been reported to be commoner among the elderly as evident in this study, if the periodontal health of the elderly is constantly monitored, it would reduce the number of complications that could result from it such as pain, tooth loss that could lead to complete edentulism and a reduced quality of life.

INTRODUCTION

The elderly is a population with health care conditions and needs which differ pointedly from those of younger people complicated by physical, behavioural and social changes associated with aging.¹ The dental needs of the elderly are dynamic² and it is important for current providers of oral health care to understand aging to meet the needs of this population. There is a difference between the perceived needs and the professionally determined needs of the dentate elderly.³ This is because the perceived needs for dental treatment is a determinant of utilization of dental services.⁴

Dealing with the elderly requires an understanding of and a sensitivity to the medical, psychological and financial states of these patients. People enjoy longer life and good quality of life when risk factors for chronic diseases are minimized and protective factors maximized.⁵ The aging population comes with several difficulties in terms of general and oral health.⁶ Globally, poor oral health in older population can be seen in the high level of tooth loss, caries activities, periodontal diseases, xerostomia and oral precancerous/cancerous lesions.⁷ This poor oral condition could cause pain and discomfort as well as affect speech, mastication, sleep, self-esteem, and confidence⁸ and probably lead to poor quality of life. The oral health of the elderly is often neglected, and oral diseases associated with them are complex.⁹ They are often confronted with certain physical and financial restraints that hamper timely utilization of available health care services, like increased distance from health facility, cost of treatment, transportation, long waiting time and not having medical insurance.^{10,11} There is need to confront and identify the needs of the elderly to enable provision of care that will allow for a smooth gradual progression in age as well as improve their quality of life. The aim of this study is to assess the differences in oral health care needs of the elderly who visited dental clinics in Nigeria.

MATERIALS AND METHODS

This was a retrospective descriptive cross-sectional study of elderly persons (60 years and older) who received oral health care at the dental center of the University of Benin Teaching Hospital (UBTH), Benin City in Southern Nigeria and the dental clinic of the National Hospital Abuja (NHA), Federal Capital Territory in Northern Nigeria.

All dental clinic records of persons aged 60 years and older who received treatment at the above dental

clinics between 1st July and 31st December 2018 were the target population.

The data of interest collated from the retrieved records were gender, age and diagnosis made. The patients were categorized based on their age into 60-64 years (the new elderly), 65-74 years (the transition group) and >75 years age group (the old elderly).

All data collated were screened for completeness and analyzed using IBM SPSS statistics for windows version 26.0 (IBM Corp. Armonk, N.Y., USA). The data was then subjected to analysis using descriptive statistics. Chi square test and Fischer's exact was used to check for associations between variables where applicable with p set at 0.05. measure of association was determined using Odds ratio where applicable.

RESULTS

A total of 292 patients aged 60 years and above were identified over the six-months period. However, records of 21 patients were not available at the time of this study so, records of 271 patients were utilized for the study giving a retrieval rate of 92.8%. A higher proportion (63.1%) of the records were obtained from UBTH while the remaining 36.9% were obtained from NHA.

The age of the patients ranged from 60 years to 98 years with a mean age of 68.54 ± 6.74 years. The most prevalent age group were the transition group (65-74 years) accounting for 48.0% of the study population while the new elderly (60-64 years) and the old elderly (75 years and above) made up 34.7% and 17.3% of the study population respectively. More than half (59.4%) of the patients were female (Table 1). There was no statistically significant association between gender of the patients and age group of the patient, $P=0.596$ (Figure 1)

The most prevalent treatment need of the patients was periodontal treatment (57.6%) followed by treatment for caries and its sequelae (40.2%). The least recorded treatment need was treatment for dentine hypersensitivity (2.2%) and ill-fitting denture (2.6%). Need for replacement of missing teeth was noted in 14.4% of the patients while treatment related to fractured teeth and non-carious tooth loss was recorded in 14.0% and 7.7% of the patients respectively. Multiple treatment was needed in 53.9% of the patients (Table 2).

No old elderly required treatment associated with failed restoration and this was statistically significant ($P=0.02$). A higher proportion of those in the transition age group required treatment for caries and its sequelae compared to the other age groups with the new elderly being the least represented, however this was not statistically significant

($P=0.49$). There was increased proportion of need for periodontal treatment with increasing age but this was not statistically significant ($P=0.07$). There was no statistically significant association between age group of the patients and other treatment needs. (Table 3)

Table 1: Demographic characteristics of the patients

Characteristics	Frequency (n)	Percent (%)	Confidence interval
Centre			
UBTH	171	63.1	31.0-42.8
NHA	100	36.9	57.2-69.0
Age group			
New elderly	94	34.7	29.2-40.2
Transition group	130	48.0	42.1-53.9
Old elderly	47	17.3	13.3-21.8
Gender			
Male	110	40.6	34.7-46.1
Female	161	59.4	53.9-65.3
Total	271	100.0	

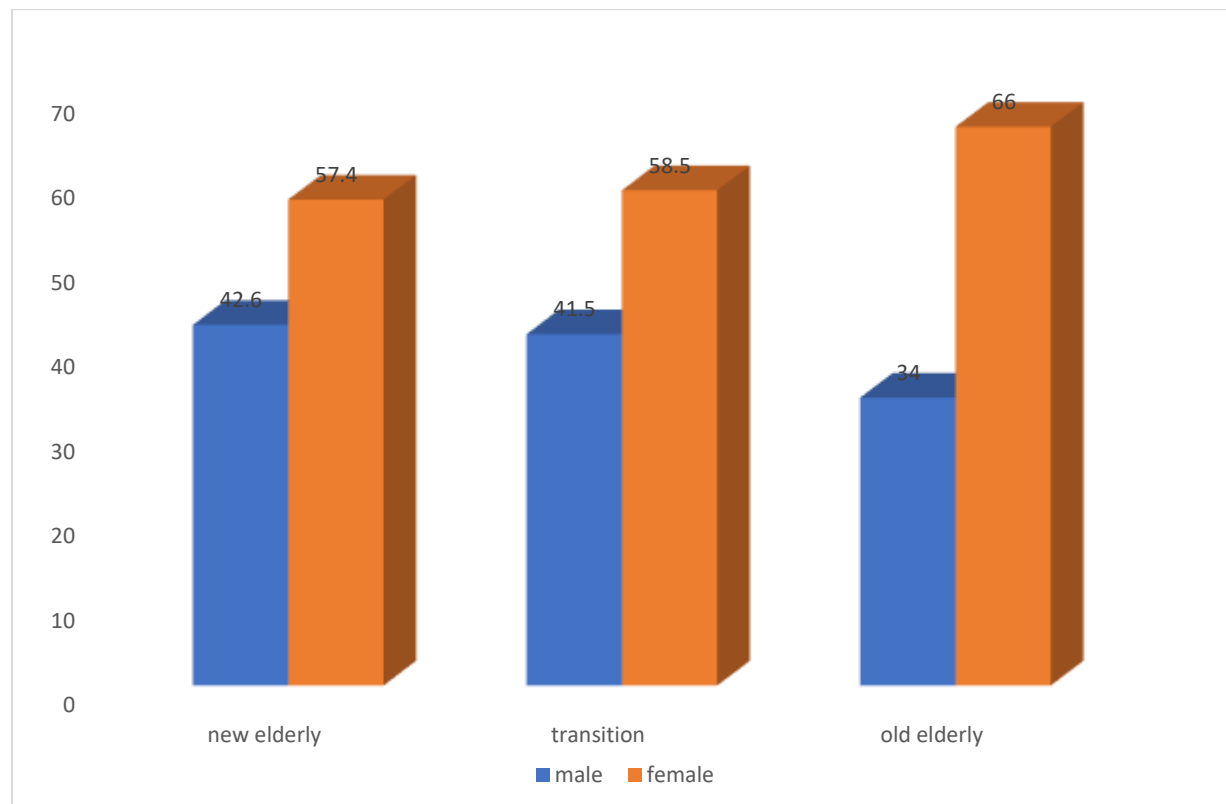


Figure 1: Association between gender and age group of the patients. $P=0.596$

Table 2: Treatment needs recorded among the patients.

Treatment needs	Frequency (n=270)	Percent (%)	Confidence interval
Single treatment	125	46.1	39.9-51.7
Multiple treatment	146	53.9	48.3-60.1
Treatment for Caries and its sequelae	109	40.2	34.3-46.1
Treatment for Fractured teeth	38	14.0	10.0-18.1
Treatment for Non-cariou tooth loss	21	7.7	4.8-11.1
Replacement of Missing teeth	39	14.4	10.3-18.8
Periodontal treatment	156	57.6	51.3-63.5
Replacement of Failed restorations	13	4.8	2.6-7.7
Repair of Ill-fitting denture	7	2.6	0.7-4.4
Treatment for Dentine sensitivity	6	2.2	0.7-4.4
Treatment for Tumor and tumor like lesions	11	4.1	1.8-6.6
Others	22	8.1	4.8-11.4

Others = Treatment for drug induced gingival hyperplasia, lichen planus, oral candidiasis, infections of the oral mucosa and fascial spaces, aphthous ulcers, trigeminal neuralgia, TMJ disorders Bony exostosis, paramolar/supernumerary teeth, osteomyelitis, oral habits such as bruxism, mandibular micrognathia, supra erupted teeth, retained deciduous and hypoplastic teeth.

Table 3: Association between age group and diagnosis made among the patients

Treatment needs	New elderly n=94	Age group Transition group n=130	Old elderly n=47	Total n=271	P value
Treatment for Caries and its sequelae	34 (36.2)	57 (43.8)	18 (38.3)	109(40.2)	0.49
Treatment for Fractured teeth	13 (13.8)	18 (13.8)	7 (14.9)	38 (14.0)	0.98
Treatment for Non-cariou tooth loss	6 (6.4)	11 (8.5)	4 (8.5)	21 (7.7)	0.83
Replacement of Missing teeth	9 (9.6)	19 (14.6)	11 (23.4)	39 (14.4)	0.09
Periodontal treatment	49 (52.1)	73 (56.2)	34 (72.3)	156 (57.6)	0.07
Replacement of Failed restorations	9 (9.6)	4 (3.1)	0 (0.0)	13 (4.8)	*0.02
Repair of Ill-fitting denture	3 (3.2)	3 (2.3)	1 (2.1)	7 (2.6)	*1.00
Treatment for Dentine sensitivity	1 (1.1)	4 (3.1)	1 (2.1)	6 (2.2)	*0.76
Treatment for tumor and tumor like lesions	5 (5.3)	5 (3.8)	1 (2.1)	11 (4.1)	0.72
Others	6 (6.4)	13 (10.0)	3 (6.4)	22 (8.1)	0.55

* Fischer's exact

A higher proportion of female patients required treatment for caries and its sequelae, however, this was not statistically significant ($P=0.57$). The odds of a male elderly patient requiring treatment related to caries and its sequelae was 0.867 times the odds of a female. Meanwhile, a higher proportion (65.5%) of males required periodontal treatment compared with females and this was statistically significant ($P=0.03$), with the odds of a male elderly patient requiring periodontal treatment being 1.737 times that of a female. Treatment needs related to replacement of missing teeth was not statistically significantly associated with gender ($P=0.26$). However, the odds of a male elderly patient requiring replacement for missing teeth was 1.472 times that of a female. There was no statistically significant

association between gender and other treatment needs recorded (Table 4).

A higher proportion (46.2%) of the study population in the southern hospital required treatment related to caries and its sequelae compared to 30.0% in the FCT and this was statistically significant ($P=0.009$). The odds of the southern hospital receiving elderly patients requiring treatment related to caries and its sequelae was 2.004 times that of FCT. Also, a higher proportion (17.5%) of patients in the southern hospital needed replacement for missing teeth compared to 9.0% in the FCT with the odds of the southern hospital receiving elderly patients requiring replacement for missing teeth 2-151 times that of FCT and this was statistically significant ($P=0.05$). There was a very highly significant association

between need for periodontal treatment by treatment center of the patient ($P < 0.0001$), with a higher proportion recorded (70.8%) in the southern hospital compared with FCT (35.0%). The odds of the southern hospital receiving elderly patients with periodontal treatment needs was 4.494 times the odds in FCT. There was also statistically significant

association between treatment need for replacement of failed restoration by centre ($P = 0.003$), with FCT hospital recording 10.0% and the southern hospital 1.8%. The odds of the southern hospital receiving elderly patients with treatment needs associated with failed restorations was 0.161 times the odds at the FCT hospital (Table 5).

Table 4: Association between gender and treatment needs

Treatment needs	Gender		Total n=271	P value	Odds Ratio Male/female
	Male n=110	Female n=161			
Treatment for Caries and its sequelae	42 (38.2)	67 (41.6)	109 (40.2)	0.57	0.867
Treatment for Fractured teeth	16 (14.5)	22 (13.7)	38 (14.0)	0.84	1.075
Treatment for Non-carious tooth loss	9 (8.2)	12 (7.5)	21 (7.7)	0.83	1.106
Replacement of Missing teeth	19 (17.3)	20 (12.4)	39 (14.4)	0.26	1.472
Periodontal treatment	72 (65.5)	84 (52.2)	156 (57.6)	0.03	1.737
Replacement of Failed restorations	3 (2.7)	10 (6.2)	13 (4.8)	0.19	0.423
Repair of Ill-fitting denture	4 (3.6)	3 (1.9)	7 (2.6)	*0.45	1.987
Treatment for Dentine sensitivity	1 (0.9)	5 (3.1)	6 (2.2)	*0.41	0.286
Treatment for Tumor and tumor like lesions	4 (3.6)	7 (4.3)	11 (4.1)	0.77	0.830
Others	10 (9.1)	9 (5.6)	19 (17.0)	0.27	1.689

* Fischer's exact

Table 5: Association between treatment needs and center treatment

Treatment needs	Centre		Total n= 271	P value	Odds Ratio UBTH/NHA
	UBTH n=171	NHA n= 100			
Treatment for Caries and its sequelae	79 (46.2)	30 (30.0)	109 (40.2)	0.009	2.004
Treatment for Fractured teeth	27 (15.8)	11 (11.0)	38 (14.0)	0.27	1.517
Treatment for Non-carious tooth loss	12 (7.0)	9 (9.0)	21 (7.7)	0.56	0.763
Replacement of Missing teeth	30 (17.5)	9 (9.0)	39 (14.4)	0.05	2.151
Periodontal treatment	121 (70.8)	36 (36.0)	156 (57.6)	<0.0001	4.494
Replacement of Failed restorations	3 (1.8)	10 (10.0)	13 (4.8)	* 0.003	0.161
Repair of Ill-fitting denture	3 (1.8)	4 (4.0)	7 (2.6)	*0.43	0.429
Treatment for Dentine sensitivity	3 (1.8)	3 (3.0)	6 (2.2)	*0.39	0.577
Treatment for Tumor and tumor like lesions	9 (5.3)	2 (2.0)	11 (4.1)	*0.22	2.722
Others	12 (7.0)	7 (7.0)	19 (17.0)	0.99	1.003

* Fischer's exact

DISCUSSION

The elderly is a unique population that needs careful handling and understanding of their health challenges and management. The elderly aged 65 to 74 years were the most prevalent in the study population, this was the same disposition in an earlier study.¹² There was a female preponderance in this study which give credence to the fact that the life expectancy of the female elderly is higher, and they tend to outlive their male counterparts.¹³ This was corroborated in other studies.^{12,14}

The observation in this study reflects that the most prevalent treatment need of the elderly was

periodontal treatment. This corroborates with that of a study from Ibadan, Nigeria.¹⁵ Periodontal disease is prevalent among the elderly population as this was reported in a review study and it has the trend of increasing with age.^{16,17} Epidemiological studies have shown that a high prevalence rate and severity of periodontal disease is associated with poor oral hygiene and plaque accumulation.¹⁸

Dental caries and its sequelae have been observed in this study to be one of the dominant treatments rendered to the elderly. Dental caries has been demonstrated worldwide to be a major public health challenge in older people and has been linked to

social and behavioral factors.¹⁹ Also, due to the presence of several risk factors, dental caries activity appears to be high and therefore requires frequent maintenance.²⁰ Some of the risk factors associated with dental caries include increase in treatment and maintenance of teeth rather than extraction, age-related salivary changes, poor diet, exposure of the root surface by gingival recession and xerostomia as a side effect of some drugs.²¹ It was however observed that dental caries treatment was higher among the transition age group and least in the new elderly, this could be attributed to the oral hygiene skills and manual dexterity of new elderly which is intact and helps in limiting and preventing dental caries and may gradually reduce as they approach the transition age group.

Dentine hypersensitivity was one of the treatment needs recorded for the elderly population in this study however it was low. This low treatment need of dentine hypersensitivity in the elderly could be due to obliteration of dentinal tubules and deposition of secondary dentine leading to sclerosis of the dentinal tubules accompanied by reduced sensitivity over a lifetime.²²

The replacement of missing teeth was observed in less than one fifth of the population in this study and this may be due to older adults tend to retain their teeth for long which result in reduction in edentulism.²³ The observation in this study contradicts that of a study where the increase in the utilization of prosthetic service was higher, this was said to be due to the awareness of the patients and possibly improvement in prosthetic facility.²⁴

The elderly tends to have chronic diseases such as dental caries, periodontal diseases, oral infection, oral mucosa lesions, missing teeth, and temporomandibular disorders.²⁵ This may be reason why it was an observation in this study where multiple treatment was needed in more than half of the elderly population.

The higher proportion of female patients requiring treatment for dental caries and its sequelae may not be unrelated to the different salivary composition and flow rate, hormonal fluctuation, dietary habits, genetic variation and social roles among their family.²⁶ The observation in this study corroborates with that of a study²⁷ and contradicts that of another study.²⁸

Periodontal disease has been reported to be higher in men than women.^{29,30} This is supported by this study and may be the result of better hygiene behavior among women independent of systemic disease.³¹ Also, the composite effect of sex based genetic

structure and hormones may be responsible as periodontal status of postmenopausal women may be improved by menopausal hormone therapy as estrogen show immune protective and anti-inflammatory effect.³²

The statistically significant difference in distribution of treatment need across both centers may be related to socio-cultural differences as well as differences in norms, dietary habits, beliefs and practices between southern and northern Nigeria as it has been demonstrated that oral health status differ between Southern and Northern Nigeria.^{16,33}

There was also statistically significant association between treatment need for replacement of failed restoration by centre. The FCT hospital is located in the federal capital city of the country with a mixed population of civil servants and business persons with various socioeconomic status which reflects their response to failed restorations, while the southern hospital is located in a city majorly made up of civil servants.

CONCLUSION

There is variation in the oral health care needs of the elderly based on age, gender, and socio-cultural differences.

Financial Sponsorship

No external source of funding

Conflict of Interest

None declared

REFERENCES

1. Alzarea BK. Dental and oral problem patterns and treatment seeking behaviour of geriatric population. *Open Dent J* 2017; 11:230-236
2. Bharti R, Chandra A, Tikku AP, Arya D, Gupta R. Oral care needs, barriers and challenges among elderly in India. *J Indian Prosthodont Soc* 2015; 15:17-22
3. Gilbert GH, Heft MW, Duncan RP, Ringelberg ML. Perceived need for dental care in dentate older adults. *Int Dent J* 1994; 44:145-52.
4. Brodeur JM, Demers M, Simard P, Kandelman D. Need perception as a major determinant of dental health care utilization among the elderly. *Gerodontology* 1988; 4:259-264.
5. Petersen PE, Yamamoto T. Improving the oral health of the older people: the approach of the WHO global oral health programme. *Community Dent Oral Epidemiol* 2005; 33:81-92
6. Chandra S, Chandra S. *Text Book of Community Dentistry*. 1st ed. New Delhi, India: Jaypee Brothers

- Medical Publishers (P) Ltd; 2004. Geriatric dental health care; pp. 239-251.
7. Schou L. Oral health, oral health care, and oral health promotion among older adults: social and behavioral dimensions. In: Cohen LK, Gift HC, editors. *Disease Prevention and Oral Health Promotion*. Copenhagen: Munksgaard; 1995
 8. Braimoh M, Ogunbodede E, Adeniyi A. Integration of oral health into primary health care system: views of primary health care workers in Lagos State, Nigeria. *J Public Health Africa* 2014; 5(1):35-39.
 9. Bhardwaj VK. Gerodontology-Orodental care for elderly. *Eur J Gen Dent* 2012; 1:15-19.
 10. Fitzpatrick AL, Powe NR, Cooper LS, Ives DG, Robbins JA. Barriers to health care access among the elderly and who perceives them. *Am J Public Health* 2004; 94:1788-1794
 11. Odaman OM, Ibiezugbe MI. Health seeking behaviour among the elderly in Edo central Nigeria. *Int Rev Soc Sci Humanit* 2014; 7:201-210
 12. Yotat ML, Agbor AM, Ntumba H, Djachechi F, Bolenge J. Oral health status of the elderly at Tonga, West Region, Cameroon. *Int J Dent* 2015; doi.org/10.1155/2015/820416
 13. Zhou Y, Zheng Z. Tooth loss among the elderly in China in health longevity in China. The series demographic methods and population analysis 2008; 20:315-327
 14. Enabulele JE, Omo JO. Pattern of tooth mortality and incidence of shortened dental arch among elderly patients seeking oral health care in a tertiary health institution in Nigeria. *EC Dental Sci* 2016; 4(4):835-841.
 15. Taiwo JO, Omokhodion F. Pattern of tooth loss in an elderly population from Ibadan, Nigeria. *Gerodontology* 2006; 23:117-122
 16. Akpata ES. Oral health in Nigeria. *Int Dent J*. 2004; 54:361-366
 17. Kasserbaum NJ, Bernabe E, Daliya M, Bhandari B, Murray CJ, Marcenes W. Global burden of severe periodontitis in 1990-2010: a systematic review and meta regression. *J Dent Res* 2014; 93:1045-1053.
 18. Nazir MA. Prevalence of periodontal disease, its association with systemic disease and prevention. *Int J Health Sci* 2017; 11:72-80.
 19. Petersen PE. The world oral health report 2003: continuous improvement of oral health in the 21st century- the approach of the WHO global oral health program. *Community Dent Oral Epidemiol* 2003; 31:3-24.
 20. Saunders RH, Meyerowitz C. Dental caries in older adults. *Dent Clin North Am* 2005; 49:293-308.
 21. Wyatt CC, Wang D, Aleksejuniene J. Incidence of dental caries among susceptible community dwelling older adults using fluoride toothpaste: 2-year follow-up study. *J Can Dent Assoc* 2014; 80:e44
 22. Splieth CH, Tachou A. Epidemiology of dentine hypersensitivity. *Clin Oral Investig* 2013; 17:3-8
 23. Carlsson GE, Omar R. Trends in prosthodontics *Med Princ Pract* 2006; 15:167-179.
 24. Akinboboye BO, Akeredolu PA, Sofola O, Ogunrinde BO, Oremusu OA. Utilization of teeth replacement services among elderly attending teaching hospital in Lagos, Nigeria. *Ann Med Health Sci* 2014; 4:57-60.
 25. Chalmers J, Pearson A. Oral hygiene care for residents with dementia: a literature review. *J Ado Nurs* 2005; 52:410-419.
 26. Ferraro M, Vierira AR. Explaining gender differences in caries: A multifactorial approach to a multifactorial disease. *Int J Dent* 2010; doi.org/10.1155/2010/649643.
 27. Fujita H, Asakura K, Ogura M. Age and sex-related dental caries prevalence in Japanese from Jomon period. *J Oral Biosci* 2007; 49:198-204
 28. Okeigbemen SA, Jeboda SO, Umweni AA. Prevalence and severity of dental caries among pensioners in Benin City, Nigeria. *Odontostomatol Trop* 2009; 32:11-16.
 29. Ojehanon PI, Ehizele AO. Periodontal condition seen in a group of Nigerian older adult patients. *J Interdisci Dent*. 2016; 6:121-127.
 30. Eke PI, Dye BA, Wei L, Thornton-Evans GO, Genco RJ. Prevalence of periodontitis in adults in the United States. *J Dent Res* 2012; 91:914-920.
 31. Schulze A, Busse M. Gender differences in periodontal status and oral hygiene of non-diabetic and type 2 diabetic patients. *Open Dent J* 2010; 10:281-297.
 32. Jain A, Bhavsar NV, Baweja A, Bhajat A, Ohri A, Grover U. Gender associated oral and periodontal health based on retrospective panoramic radiographic analysis of alveolar bone loss. 2020; doi:10.5772/intechopen.93695
 33. Folayan MO, Khami MR, Onyejaka N, Popoola BO, Adey Preventive oral health practices of school pupils in Southern Nigeria. *BMC Oral Health* 2014; 14:83. doi.org/10.1186/1472-6831-14-83