

Oral hygiene status and practices among rural dwellers

Clement C. Azodo, Osarobo Pius Amenaghawon[†]

Departments of Periodontics and [†]Preventive Dentistry, University of Benin Teaching Hospital, Benin City, Edo State, Nigeria

Address for correspondence:

Dr. Clement C. Azodo,
Department of Periodontics, Room 21,
2nd Floor, Prof Ejide Dental Complex,
University of Benin Teaching Hospital,
P.M.B. 1111 Ugbowo,
Benin City, Edo State, Nigeria.
E-mail: clementazodo@yahoo.com

ABSTRACT

Objectives: To determine the oral hygiene status and practices among rural dwellers in Delta and Edo States of Nigeria. **Materials and Methods:** One-hundred and fifty-four participants (45 males and 109 females) between the ages of 5 and 88 years with mean age of 33.44 ± 2.34 years selected among individuals attending Children Evangelism Ministry Free Medical Outreach in five rural communities in both Delta and Edo State of Nigeria were studied. Data were collected through clinical examinations and the use of interviewer-administered questionnaires. **Results:** Of the 154 participants studied, 22.1% participants had one or more carious teeth, 11.7% participants had at least one missing tooth and 0.6% participants had fillings. Toothache (33.1%) and gingival bleeding (27.3%) were reported oral health problems among the participants. One third (33.8%) of the participants had poor oral hygiene status. Oral hygiene status was significantly associated with age, gender, and educational status, but there was no significant variation among the various communities. Majority of the participants cleaned their teeth with toothbrush and toothpaste-133 (86.4%), indulged in once-daily tooth cleaning-115 (74.7%), and have never visited the dentist-145 (94.2%). There existed significant association between daily tooth cleaning frequency, age, gender, location and level of education. **Conclusion:** The oral hygiene and oral health practices among rural dwellers were suboptimal. There is need to develop and implement community-oriented oral health promotion programs targeting oral health practices to control preventable oral diseases among rural dweller.

Key words

Calculus score, debris score, oral hygiene, practices, rural dwellers

INTRODUCTION

The World Health Organization at Alma Ata in 1982 emphasized the need to attain a level of health that will permit productive life at the highest possible level by the year 2000. This emphasis was directed to all health management disciplines, of which oral health is an essential part. However, World Oral Health Report 2003, still qualified oral diseases as a major public health problem worldwide.^[1] Oral health is seen as a very low priority in the African Region, where extreme poverty is dominant, limiting resources available to the health sector, and the little assigned to the health sector are mainly directed towards life threatening conditions such as HIV/AIDS, tuberculosis, and malaria rather than oral

diseases.^[2] The changing living condition, adoption of healthy lifestyle, improved self-care practices, effective use of fluorides, and establishment of preventive oral care programs which have improved oral health status among adults in developed countries^[3] are dominantly deficient in developing countries with worse scenarios in rural areas.

Many oral health conditions can be detected early and are preventable with appropriate care. However, the attainment of oral health which is an essential component of general health and well-being is impeded by multiplicity of barriers which include the cost, poor access due to workforce shortages, and inequitable distribution of the dental workforce, undue fear, anxiety and self-blaming, low oral health literacy and differing oral health beliefs, negative oral health attitudes, and poor oral health behaviors. Variations exist in oral health practices and the prevalence of oral diseases (periodontal diseases, treatment needs, and dental caries) in urban and rural areas.^[4-6] In developed countries, rural dwellers are more likely to have untreated dental caries than non-rural dwellers whereas rural dwellers have lower prevalence of dental caries, more severe periodontal scores, and poorer oral hygiene than urban dwellers in developing countries.^[7,8]

Access this article online	
Quick Response Code:	Website: www.ejgd.org
	DOI: 10.4103/2278-9626.106806

The unmet dental care needs are pronounced, particularly in rural areas despite the fact that oral diseases affect the ability to eat, dietary choices, appearance, speech, and economic productivity by compromising activities at work, home, and school.^[9] Missionary have contributed to improving access to dental care and oral hygiene practices through short, free medical and dental care missions, establishment of rural hospitals, and provision of educational programs on oral health.^[10,11] The almost exclusively curative oral health care available in Africa is largely directed towards combating dental caries and periodontal diseases and poor access to oral health services limit the interpretation and generalization of hospital-based studies. The objective of this study was to determine the oral hygiene status and practices among rural dwellers in Delta and Edo States.

MATERIALS AND METHODS

This was a cross-sectional study of selected individuals attending Children Evangelism Ministry Free Medical Outreach in five communities in Delta and Edo State. The communities are Amai in Ndokwa West Local Government Area (LGA) of Delta State, Akhuakhuari in Oredo LGA, Ovah in Ovia North East, Udumebor in Esan Central and Apana in Esako West all in Edo State. A total of 154 subjects (45 males and 109 females) between the ages 5 and 88 years, mean age 33.44 ± 2.34 years were recruited with the following distribution 26 (16.9%) from Amai in Ndokwa West LGA of Delta State and the other four communities in Edo State as 25 (16.2%) from Udumebor in Esan Central LGA, 51 (33.1%) from Apana in Etsako West LGA, 26 (16.9%) from Akhakhari in Oredo LGA and 26 (16.9%) from Ovah in Ovia North East LGA. Data were collected through interviewer-administered questionnaires and clinical examinations.

The questionnaire was divided into three sections: Section A assessed the socio-demographic information like age, gender, level of education, and occupation, community, LGA and State were recorded. Section B sought information on oral health problems and practices of participants, reason, and pattern of dental visit. Section C constituted information from clinical oral examination using wooden spatula, examination gloves and face mask and done under visible light. The debris and calculus scores were recorded and Simplified oral hygiene Index (OHIS) was calculated and recorded as: Good 0-1.2, fair; 1.3-3.0, and poor 3.1-6.0. All those that attended the Free Medical Care were given oral health education, and those with dental problems were referred for dental treatment. The data were entered into computer and analyzed using Statistical Package for Social Statistics Version 16.0 (SPSS Inc, Chicago Illinois, USA). Summary statistics (frequency percentages and cross tabulations) were generated. Test of significance was done with Chi square test, and $P < 0.05$ was considered to be statistically significant.

RESULTS

Of the 154 participants studied, 22.1% participants had one or more carious teeth, 11.7% participants had at least one missing tooth, and 0.6% participants had fillings. Toothache (33.1%) and gingival bleeding (27.3%) were reported oral health problems among the participants [Table 1]. Majority of the participants cleaned their teeth with toothbrush and toothpaste-133 (86.4%), indulged in once-daily tooth cleaning-115 (74.7%), and has never visited the dentist [Table 2].

One-third (33.8%) of the participants had poor oral hygiene status [Figure 1]. Oral hygiene status

Table 1: Oral conditions among the participants

Conditions	Present n (%)	Absent n (%)
Untreated carious teeth	34 (22.1)	120 (77.9)
Missing teeth	18 (11.7)	136 (88.3)
Filled teeth	1 (0.6)	153 (99.4)
Gingival bleeding	42 (27.3)	112 (72.7)
Toothache	51 (33.1)	103 (66.9)

Table 2: Oral hygiene practices among the participants

Variable	Frequency n	Percent
Tooth cleaning aids		
Chewing stick	6	3.9
Chewing stick and toothpaste	6	3.9
Toothbrush and toothpaste	133	86.4
Combination of all	7	4.5
None	2	1.3
Daily tooth cleaning frequency		
≥Twice	30	19.5
Once	115	74.7
Irregular	9	5.8
Dental visit		
Yes	9	5.8
No	145	94.2
Total	154	100.0

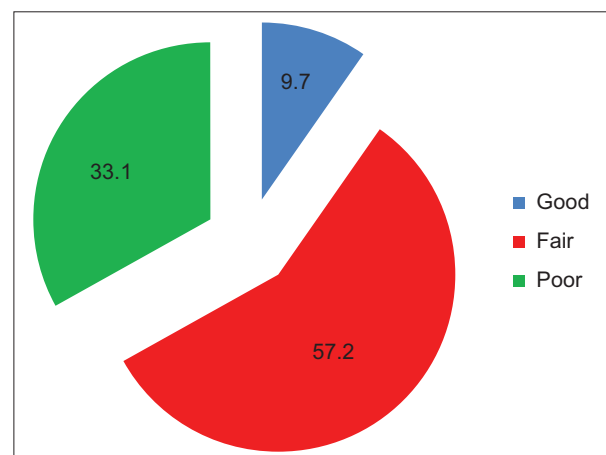


Figure 1: Oral hygiene status among the participants

was significantly associated with age, gender, and educational status, but there was no significant variation among the various communities [Table 3]. There existed significant association between daily tooth cleaning frequency, age, gender, location, and level of education [Table 4].

DISCUSSION

Studies on the prevalence of dental caries in Nigeria which have been predominantly among school children in the urban areas reflect it as an increasing oral disease of public health importance.^[12-14] In this study, 22.1% of participants had one or more unrestored carious teeth, 11.7% participants had missing teeth and 0.6% participants had filled teeth which indicate that there

is high unmet treatment needs among the studied population. The low dental visit (5.8%) noted among the participants may have resulted from poor access to dental care and inequitable distribution of the dental workforce provides clue to the level of unmet needs. The frequent report of dental care as unmet health need has been documented in developing countries.^[15] However, the reported prevalence was higher than 17.6% and was found in 11-16 years old schoolchildren in rural area in Enugu State, South Eastern, Nigeria.^[16] This can be explained by variation of the socioeconomic status, cariogenic dietary pattern, and snacking habits among different ethnic groups and inhabitants of geopolitical zones in Nigeria.

One-third (33.8%) of the participants had poor oral hygiene status. This may be explained by the low prevalence (19.5%) of more than once-daily tooth cleaning frequency reported by the participants in this study. The poor oral hygiene status was a relevant explanation for the high prevalence of self-reported oral health problems toothache (33.1%) and gingival bleeding (27.3%) among the participants. The self-reported prevalence of toothache (34%) and gingival bleeding (28%) was comparable to findings of study among urban populace in Benin City.^[17] This was based on the fact that these conditions are plaque-related.

Oral hygiene status was significantly associated with age, gender, and educational status, but there was no significant variation among the various communities.

Table 3: Oral hygiene status, demographic characteristics, and oral health conditions among the participants

Variable	Oral hygiene status			P value
	Good n (%)	Fair n (%)	Poor n (%)	
Age group				0.001
Childhood	6 (10.5)	37 (64.9)	14 (24.6)	
Young adult	8 (15.7)	30 (58.8)	13 (25.5)	
Middle-aged adult	0 (0.0)	16 (61.5)	10 (38.5)	
Elderly	0 (0.0)	5 (25.0)	15 (75.0)	
Gender				0.041
Male	0 (0.0)	28 (62.2)	17 (37.8)	
Female	14 (12.8)	60 (55.0)	35 (32.1)	
Level of education				0.022
No formal education	0 (0.0)	8 (38.1)	13 (61.9)	
Kindergarten	1 (14.3)	5 (71.4)	1 (14.3)	
Primary	8 (11.1)	39 (54.2)	25 (34.7)	
Secondary	1 (3.6)	22 (78.6)	5 (17.9)	
Tertiary	4 (15.4)	14 (53.8)	8 (30.8)	
Location				0.576
Ovia Northeast	3 (11.5)	17 (65.4)	6 (23.1)	
Esan central	3 (12.0)	15 (60.0)	7 (28.0)	
Esako west	2 (3.9)	27 (52.9)	22 (43.1)	
Oredo	2 (7.7)	16 (61.5)	8 (30.8)	
Ndokwa west	4 (15.4)	13 (50.0)	9 (34.6)	
Daily tooth cleaning frequency				0.114
Irregular	0 (0.0)	3 (33.3)	6 (66.7)	
Once	10 (8.7)	71 (61.7)	34 (29.6)	
≥once	4 (13.3)	14 (46.7)	12 (40.0)	
Gingival bleeding				0.001
Yes	0 (0.0)	21 (50.0)	21 (50.0)	
No	14 (12.5)	67 (59.8)	31 (27.7)	
Toothache				0.094
Yes	2 (3.9)	27 (52.9)	22 (43.1)	
No	12 (11.7)	61 (59.2)	30 (29.1)	
Dental visit				0.400
Yes	0 (0.0)	6 (66.7)	3 (33.3)	
No	14 (9.7)	82 (56.6)	49 (33.8)	

Table 4: Daily tooth cleaning frequency and demographic characteristics among the participants

Variable	Daily tooth cleaning frequency			P value
	Irregular n (%)	Once n (%)	≥Twice n (%)	
Age group				0.001
Childhood	7 (12.3)	49 (86.0)	1 (1.8)	
Young adult	0 (0.0)	35 (68.6)	16 (31.4)	
Middle-aged adult	1 (3.8)	17 (65.4)	8 (30.8)	
Elderly	1 (5.0)	14 (70.0)	5 (25.0)	
Gender				0.001
Male	8 (17.8)	32 (71.1)	5 (11.1)	
Female	1 (0.9)	83 (76.1)	25 (22.9)	
Location				0.001
Ovia northeast	1 (3.8)	22 (84.6)	3 (11.5)	
Esan central	2 (8.0)	11 (44.0)	12 (48.0)	
Esako west	0 (0.0)	42 (82.4)	9 (17.6)	
Oredo	6 (23.1)	20 (76.9)	0 (0.0)	
Ndokwa west	0 (0.0)	20 (76.9)	6 (23.1)	
Level of education				0.023
No formal education	1 (4.8)	15 (71.4)	5 (23.8)	
Kindergarten	3 (42.9)	4 (57.1)	0 (0.0)	
Primary	4 (5.6)	58 (80.6)	10 (13.9)	
Secondary	1 (3.6)	18 (64.3)	9 (32.1)	
Tertiary	0 (0.0)	20 (76.9)	6 (23.1)	

Female participants had better oral hygiene status than male participants which is similar to findings of previous studies among school children in South West Nigeria.^[13,18] This may be explained by the fact that females exhibit better health practices and attach more importance to their health as quantified by more frequent tooth cleaning in this study. The individual with tertiary education were more likely to have good oral hygiene, and this could be explained by the fact that exposure to higher level of education influences oral health behavior like daily tooth cleaning frequency. Middle-aged adults exhibited more tendencies to have good oral hygiene status because of their higher frequency of daily tooth cleaning. Although there was no significant variation in oral hygiene status among the various communities due to the similarity of the terrain, participants from Ndokwa West had more likelihood to have good oral hygiene status because irregular daily tooth cleaning was not recorded in this community.

The majority (86.4%) of the participants used toothbrush and toothpaste to clean their teeth while minority 6 (3.9%) used chewing stick only. This contrasted with previous reports among rural dwellers in Nigeria with high prevalence of chewing stick use as tooth cleaning agent.^[7] The trends and changes in accessibility and availability of information, governance, and economic situations over time may have resulted in high use of toothbrush and toothpaste. The fashionable nature of tooth brushing may have accelerated its acceptance among rural dwellers.

CONCLUSION

The oral hygiene and practices among the studied rural dwellers were suboptimal. There is need to develop and implement community-oriented oral health promotion programs targeting oral health practices to control preventable oral diseases among rural dweller.

REFERENCES

- Petersen PE. The World Oral Health Report 2003. Continuous improvement of oral health in the 21st century and the approach of Oral Health programme. Geneva: World Health Organization; 2003. p. 1-39.
- Ndiaye CF. Oral health in the African region: Progress and perspectives of the regional strategy. *African J Oral Health* 2005;2:2-9.
- Zhu L, Petersen PE, Wang HY, Bian JY, Zhang BX. Oral health knowledge, attitudes and behaviour of adults in China. *Int Dent J* 2005;55:231-41.
- Adegbembo AO, el-Nadeef MA. National survey of periodontal status and treatment need among Nigerians. *Int Dent J* 1995;45:197-203.
- el-Nadeef MA, Adegbembo AO, Honkala E. The association of urbanisation with the prevalence of dental caries among schoolchildren in Nigeria new capital territory. *Int Dent J* 1998;48:44-9.
- Akhionbare O, Ojehanon PI, Ufomata DO, Jeboda SO. Periodontal treatment needs of urban and rural populations in Edo State, Nigeria. *Nig Dent J* 2007;15:13-7.
- Sofola OO, Shaba OP, Jeboda SO. Oral hygiene and periodontal treatment needs of urban school children compared with that of rural school children in Lagos State, Nigeria. *Odontostomatol Trop* 2003;26:25-9.
- Varenne B, Petersen PE, Ouattara S. Oral health status of children and adults in urban and rural areas of Burkina Faso, Africa. *Int Dent J* 2004;54:83-9.
- U.S. Department of Health and Human Services. Oral health in America: A Report of the Surgeon General. Rockville, MD, U.S.: Department of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health; 2000.
- Ogunbodede EO. Missionary Contribution to Dentistry in Nigeria. In abstract and program of International Association for Dental Research 2004. Available from: http://iadr.confex.com/iadr/niger04/preliminaryprogram/abstract_53574.htm. [Last accessed on 2011 Jan 12].
- Okeigbemen SA. Pattern of dental diseases among subjects attending a short-term medical mission project in Uromi, Nigeria. *Ann Afr Med* 2009;8:69-70.
- Okeigbemen SA. The prevalence of dental caries among 12 to 15-year-old school children in Nigeria: Report of a local survey and campaign. *Oral Health Prev Dent* 2004;2:27-31.
- Agbelusi GA, Jeboda SO. Oral health status of 12-year-old Nigerian children. *West Afr J Med* 2006;25:195-8.
- Umesi-Koleoso DC, Ayanbadejo PO, Oremosu OA. Dental caries trend among adolescents in Lagos, south-west Nigeria. *West Afr J Med* 2007;26:201-5.
- Davis MM, Hilton TJ, Benson S, Schott J, Howard A, McGinnis P, *et al*. Unmet dental needs in rural primary care: A clinic-, community-, and practice-based research network collaborative. *J Am Board Fam Med* 2010;23:514-22.
- Okoye LO, Ekwueme OC. Prevalence of dental caries in a Nigerian rural community: A preliminary local survey. *Ann Med Health Sci Res* 2011;1:187-95.
- Okunseri C, Hodges JS, Born D. Self-reported toothache experience in an adult population in Benin City, Edo State, Nigeria. *Oral Health Prev Dent* 2005;3:119-25.
- Bamigboye O, Akande TM. Oral hygiene status of students in selected secondary schools in Osogbo, Nigeria. *Nig Med Pract* 2007;51:71-5.

How to cite this article: Azodo CC, Amenaghawon OP. Oral hygiene status and practices among rural dwellers. *Eur J Gen Dent* 2013;2:42-5.

Source of Support: Nil, **Conflict of Interest:** None declared.