



Oke-Ogun Communities Engagement of Dental Auxiliaries, a Call for Policy Direction

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Abstract

Objective: To present our experience of engagement of dental auxiliaries to carry out minor dental treatment during an outreach program in a rural population of Oyo state, Nigeria. This in effect will reduce the oral health burden of rural populace and may be a clarion call for a policy change in the health system.

Methodology: This is a retrospective study of the functions of dental auxiliaries during the dental outreach program that took place at Oke-Ogun communities between January 2019 and July 2022. Oke-ogun consist of rural communities of Oyo State, Nigeria, consisting of 10 Local Government Areas (LGAs). Outreach program data collected were analysed using SPSS statistical package (version 20).

Results: A total of 1538 patients were seen during the program, consisting of 823 (53.5%) male and 715 (46.5%) female. Periodontitis including gingivitis, chronic periodontitis and advanced periodontitis constituted 868 (56.4%) of the diagnosis recorded. Dental auxiliaries rendered treatment to 1,007 (65.5%) of the respondents including scaling and Polishing, Filling, medication, counselling, and referral while doctors treated 464 (30.2%), mainly dental extractions.

Conclusion: Dental auxiliaries can attend to most of the basic oral health needs of the rural populace which is tied essentially to oral hygiene maintenance. It implies that establishing a community dental clinic manned by the dental auxiliaries in all the local government areas of Nigeria will ensure continuous awareness creation and basic oral health maintenance. Due to shortage of dentist, dental auxiliaries can be used in rural areas while making referrals of difficult cases to the dentist that are mainly based in the cities.

Keywords: Dental Auxiliaries; Oke-Ogun; Rural; Oral Health Burden

Introduction

Oral health care disparities could be understood as “making disadvantaged groups even more disadvantaged with respects to their oral health” and it reflects a situation where oral health is inaccessible to a group because of their socioeconomic status [1]. People living in the rural areas usually are poorer economically, have low knowledge of oral health due to their low levels of health literacy and this lead to poor utilization of health services which in most cases is inaccessible due to the locations of such health facilities, cost of treatment, lack of health insurance coverage and shortage of trained dentist [2-4]. The result of this disparities is almost always an increased prevalence of oral diseases such as dental caries, gingivitis, and chronic periodontitis [5,6].

The term “Expanded Function Dental Auxiliaries” originated in New Zealand during World War I in 1921 when there was extensive dental disease that overwhelmed the dentists [7] and there

was the need to train dental assistants to carry out some of those functions’ originally performed by the dentist such as dental filling that can be corrected without harm to the patient [8]. In 1972, the United States Army designed an extensive training program for these Expanded Function Dental Auxiliaries (EFDAs) covering a period of 48 weeks but was later reduced to 16 weeks in 1985 [8]. Studies done in the United States of America has shown that EFDAs are capable of carrying out a wide range of dental treatment at good quality, under the supervision of the dentist and this has led to increased productivity of dental treatment [9-11]. In Cameroon, the use of mid-level dental health providers in rural areas was recommended to the government after they were effectively trained by the dentist and used in rural areas to do fillings, minor tooth extractions, and dentures under the supervision of the dentist [4].

Nevertheless, a study done in some developed countries reported that the use of dental auxiliaries to carry out expanded functions

due to shortage of dentist was not supported by dentist in the United Kingdom, Canada, Finland, and New Zealand [12]. While there is a paucity of studies on the effectiveness of the use of dental auxiliaries, it has however been reported in a review done in the United States, Canada, Gambia and Singapore that dental auxiliaries could perform atraumatic restorative technique and placing preventive resin fissure sealants like the dentist, after been trained [13].

While Shahin., *et al.* [14] grouped dental hygienists, and dental assistants as “dental auxiliaries”, Azodo., *et al.* [15]. described dental technologist and dental therapist as dental auxiliaries. In this study, dental auxiliaries consist of the dental therapist, dental nurses, and the dental surgeon assistants. Furthermore, from our experience, we would show that their use in rural areas of Nigeria would ease the pressure on the dentist, reduce dental health burden and disparities while discouraging quackery since further training for expanded dental procedures would be provided to them.

The main objective of this study is to present our experience of the role of dental auxiliaries during an outreach program and to study the possibility of recommending their use to carry out basic oral health needs of the rural populace, after they have received additional training and are supervised.

Materials and Methods

This is a retrospective study of the role of dental auxiliaries at the dental outreach program that took place at Oke-Ogun, a rural community of Oyo province of Nigeria. This is part of a larger study of the activities at the dental outreach program carried out by Cleft and Facial Deformity Foundation (CFDF), which is an Abuja based Non-Governmental Organization. The outreach program took place in 3 batches: January 2019, November 2019, and July 2022. It covered all the 10 Local Government Areas (LGAs) of Oke-Ogun which are: Atisbo, Iseyin, Irepo, Iwajowa, Itesewaju, Kajola, Olorunsogo, Orelope, Saki East and Saki West. This followed permission from the state and Local Government Authorities.

The migratory outreach program was carried out by 2 dentists and 5 Dental Auxiliaries (2 Dental Therapists and 3 Dental Surgery Assistants). All the dental auxiliaries had a minimum of 5 years working experience and yearly training on application of fissure sealants, atraumatic restoration and simple extractions at

the International Craniofacial academy (ICA), Abuja, Nigeria. The armamentarium included locally fabricated dental chairs See Fig 1, regular dental consumables, and sterilizing equipment. Information extracted from the standard case files of CFDF included demographics, diagnosis recorded, treatment rendered and record of activity of the dentist and dental auxiliaries.



Figure: A dental auxiliary carrying out treatment on a locally fabricated dental chair.

Data collected were analysed using SPSS statistical package, version 20. Statistics and frequency tables were done for all variables.

Results

There were a total of 1538 patients seen during the program, 823 (53.5%) male and 715 (46.5%) female. Table 1 shows the various locations visited as well as gender distribution of the patients seen. Most of the LGAs that make up Oke-Ogun community had more males in attendance than the females except for a few like Ago-are where the record of 95 females in attendance doubled the males of 47 that were present.

Table 2 refers to the list of diagnosis recorded during the program. Gingivitis was the most common diagnosis 560 (36.4%). Periodontitis including gingivitis, chronic periodontitis and advanced periodontitis constituted 868 (56.4%) of the diagnosis recorded. Edentulousness recorded was 66 (4.3%) and dental caries was 3.5%.

Location	Sex				Total	%
	Male	%	Female	%		
KISHI	104	6.7	29	1.9	133	8.6
AGO-AMODU	54	3.5	59	3.8	113	7.3
OTU	55	3.6	60	3.9	115	7.5
OKEHO	95	6.2	82	5.3	177	11.5
IWAJOWA	29	1.9	59	3.8	88	5.7
AGO-ARE	59	3.8	50	3.3	109	7.1
IGBOHO	70	4.5	49	3.2	119	7.7
TEDE	47	3.1	37	2.4	84	5.5
SAKI	86	5.6	61	4.0	147	9.6
ILERO	32	2.1	34	2.2	66	4.3
ISEYIN	75	4.9	55	4.6	130	8.5
IPAPO	70	4.5	45	3.0	115	7.5
AGO ARE 2	47	3.0	95	6.2	142	9.2
TOTAL	823	53.5	715	46.5	1538	100.0

Table 1: Location and Gender Distribution of patients examined at Oke-Ogun Community.

Table 3 is a presentation of treatment and treatment givers. The Dental Auxiliaries treated 724 (47.1%) patients, while the doctors treated 464 (30.2%). Both were involved in the treatment of 350 (22.8%) cases. Scaling and Polishing 687(45.3%) was done by the dental auxiliaries and while filling at 21 (1.4%) was also done by

Diagnosis	Frequency	Percent
Gingivitis	560	36.4
Pulpitis	80	5.2
Apical periodontitis	166	10.8
Chronic periodontitis	157	10.2
Sensitivity	34	2.2
Pericoronitis	43	2.8
Edentulousness	66	4.3
Retained root	53	3.4
Retained deciduous	26	1.7
Caries	54	3.5
Crowding	7	.5
Tooth Wear Lesion	29	1.9
Fracture tooth	52	3.4
Others	60	3.9
Advanced Periodontitis	151	9.8
Total	1538	100.0

Table 2: Diagnosis recorded Among the Patients in Oke-Ogun Communities.

the dental auxiliaries but dental extraction was done exclusively by dentist at 458 (30%). Medication, Counselling, and referrals were carried out by both doctors and auxiliaries. When scaling and Polishing done is combined with Filling, medication, counselling and referral, dental auxiliaries would be said to have rendered treatment to 1,007 (65.5%) of the respondents.

Treatment	Treatment Giver			Total	Percentage
	Dental Auxiliaries	Doctors	Both		
Scaling and Polishing	687	0	10	697	45.3
Extraction	0	458	4	462	30.0
Filling	21	0	0	21	1.4
Medication	0	0	122	122	7.9
Counselling	5	1	70	76	4.9
Referred	0	0	107	107	7.0
Counselling, Medication	0	0	2	2	0.1
Scaling and Polishing, Filling	6	0	2	8	0.5
Scaling and polishing, Extraction	5	5	30	40	2.6
Counselled and referred	0	0	3	3	0.2
Total	724	464	350	1538	100.0

Table 3: The different treatment rendered by the dentist and the dental auxiliaries at Oke-Ogun Community.

Discussion

The dental outreach program conducted by International Craniofacial Academy (ICA) was an opportunity to expand the scope of trained dental auxiliaries in carrying out treatment that were traditionally the exclusive preserve of dentist. In table 1, we can see that the Oke-Ogun communities had more males with 823 in attendances as against 715 females, however a few communities had more females in attendance than the others. Nevertheless, the total number of patients treated was 1538.

Thus, as shown in table 2, out of the 1538 patients that were seen, 560 (36.4%) had gingivitis, 157 (10.2%) had chronic periodontitis which together give a reflection of more cases of periodontal diseases being present in Oke-Ogun communities. Periodontitis has been identified as the sixth most prevalent disease in the world and the first major cause of tooth loss [16,17]. However, gingivitis which is an inflammatory reaction because of accumulation of plaque and calculus [18] could progress to periodontal disease and other systemic diseases [19]. This progression could be prevented among other means through an early intervention which include non-surgical approach which is an important part of the management of periodontal diseases [16,18]. Dental auxiliaries carried out 687 cases of this non-surgical approach through scaling and polishing. This intervention is believed would go a long way in reducing the prevalence of tooth loss as seen among the study participants with 4.3% edentulousness recorded in the communities since periodontal disease is one of the major causes of tooth loss [17-20].

Dental auxiliaries were also involved in 5 cases of scaling and polishing with extractions, 21 cases of fillings, and 5 cases of counseling of patients on oral health education and oral health promotion in Oke-ogun communities as shown in table 3. Similar responsibility was also successfully handled by mid-level providers in rural communities in Cameroon where the mid-level providers did 93.5% of all extractions, 87.5% fillings, 97.5% scaling and polishing [4]. While this present study did not compare the effectiveness of the treatment carried out by the doctors and the auxiliaries, two studies in the United States of America and one each in Canada, Gambia and Singapore reported there was no difference in tooth decay after treatment with fissure sealants between the one done by the dentist and that by the auxiliaries [13]. In addition, the survival rate of fillings was not different after 12 months

in these two groups further buttressing the argument that when properly trained, dental auxiliaries can carry out this treatment which would allow the dentist more time to focus on other extensive dental treatments [13].

Conclusion

This study has shown the effective utilization of dental auxiliaries in the treatment of the basic oral health needs of the rural population of Oke Ogun communities when they are properly trained. This would reduce health burden on the government and inequalities in oral health care since they can be employed in rural communities with little expenditure on the LGAs. Then the dentists would also have more time to concentrate on more extensive dental cases. One anecdotal evidence is the fact that majority of dental auxiliaries come from different communities and hence stand the higher chance of remaining in the locality compared with doctors that are in short supply with very low retention rate in the rural communities of Nigeria.

Recommendations

It is the opinion of these researchers that the following may be considered

- Government should consider the establishment of at least one Community dental clinic in the 774 local governments of Nigeria. These clinics will be manned by dental auxiliaries and supervised by the few available dentists. This will provide an all-year-round dental awareness, treatment of basic needs and auxiliaries have high retention rate.
- The Nigeria Dental Association (NDA) should sensitize dental surgeons that the use of dental auxiliaries to carry out some of this dental procedure is not an attempt to "steal" their duties.
- Non-governmental organization should include these dental auxiliaries in their medical outreach programs.
- Regular update of knowledge and yearly recertification of the auxiliaries should be encouraged.

Limitation

This research was done among few patients and a three months or six months review of the patients was not done due to the migratory nature of the program of the NGO.

Conflict of Interest

There is no conflict of interest to declare.

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