

# Evaluation of the scope and practice of oral and maxillofacial surgery in Nigeria

VI Akinmoladun, OO Gbolahan, OA Akadiri<sup>1</sup>, CA Akinyamoju<sup>2</sup>

Department of Oral and Maxillofacial Surgery, College of Medicine, University of Ibadan, <sup>2</sup>Department of General Dental Practice, University College Hospital, Ibadan, <sup>1</sup>Department of Oral and Maxillofacial Surgery, University of Port Harcourt, Port Harcourt, Nigeria

## Abstract

**Background:** Oral and maxillofacial surgery is still evolving, with the scope of practice in Nigeria inadequately determined.

**Aims and Objectives:** This study aims to ascertain the level of practice in various parts of the country vis-a-vis the global trend and factors influencing the scope in Nigeria.

**Design of the Study:** Cross-sectional.

**Setting:** The study was carried out at the University of Ibadan. Participants included all the maxillofacial surgeons on the mailing list of the Nigerian Association of Oral and Maxillofacial Surgeons and Practicing in Nigeria as at December, 2012.

**Materials and Methods:** Structured questionnaires were delivered to all on the mailing list of the Nigerian Association of Oral and Maxillofacial Surgeons. Respondents were asked to provide information about their demographics, years of practice, areas of practice and factors influencing the choice of practice among others. Nonresponders were reminded a month after initial contact. Data were entered into a personal computer and variables analyzed using descriptive statistical analysis.

**Results:** Thirty-two (56%) of the 57 questionnaires were returned. Most respondents were aged 41–45 years ( $n = 11$ , 34.4%). Twenty-six (81.3%) were males, whereas 6 (18.8%) were females. Twenty respondents (62.5%) practiced in the teaching hospitals. Eighteen respondents (56.3%) practiced in the south-west geopolitical region. Twelve respondents (37.5%) were the only maxillofacial surgeons in their centers. 81.3% routinely practiced traumatology against 15.6% for implantology. Seventy-eight percent ( $n = 25$ ) had satisfactory facilities for traumatology, dentoalveolar surgery, and cleft repair surgery, while facilities were least satisfactory in implantology and orthognathic surgery (15.6% and 12.5%, respectively). The highest single factor influencing choice/area of practice was financial reward (100% of respondents). Fifty percent ( $n = 16$ ) claimed not to have had adequate training in their area of interest. Most respondents (93.8%) believe the greatest challenge facing oncological maxillofacial surgery in Nigeria was late presentation of patients.

**Conclusion:** The scope of practice of oral and maxillofacial surgery is largely limited in the country relative to what obtains globally.

**Key words:** Nigeria, oral and maxillofacial surgery, scope practice

**Date of Acceptance:** 27-Nov-2014

## Introduction

Oral and maxillofacial surgery is a specialty in dentistry that developed as a result of the need to treat servicemen injured in World War 2. However, over the years, it has grown to become an established surgical subspecialty. It is

involved in the management of a wide range of oral, jaw and facial conditions. The scope of the specialty includes maxillofacial trauma, oncology, esthetic surgery, cleft of the

### Address for correspondence:

Dr. Olalere O Gbolahan,  
Department of Oral and Maxillofacial Surgery, College of Medicine,  
University of Ibadan, Ibadan, Nigeria.  
E-mail: [gbolahanlere@yahoo.com](mailto:gbolahanlere@yahoo.com)

### Access this article online

#### Quick Response Code:



Website: [www.njcponline.com](http://www.njcponline.com)

DOI: 10.4103/1119-3077.151068

lip and palate, temporomandibular disorders, salivary gland diseases, orofacial pain, orofacial infections among others.<sup>[1,2]</sup> The specialty is evolving in Nigeria with more specialists being produced and new facilities emerging in different geopolitical zones of the country. However, there is a need to ascertain the scope of practice and factors influencing the pattern of services rendered. This information is essential for effective organization of training, health care planning and appropriate resource allocation. This study is, therefore, aimed at determining the current scope of maxillofacial surgical practice in Nigeria as well as to highlight the various factors influencing the practice.

### Materials and Methods

A list of maxillofacial surgeons in Nigeria was compiled from the mailing list of the Nigerian Association of Oral and Maxillofacial Surgeons. Structured questionnaire was delivered to all on the list by hand or electronically as E-mail attachments. Respondents were asked to provide details about their demographics, years of practice, areas of practice and factors influencing the choice of practice, extent of maxillofacial surgery practiced in their center and factors limiting or influencing practice of different aspects of maxillofacial surgery. Nonresponders were reminded by phone, E-mail and personal contact a month after initial contact. Data were entered into a personal computer and descriptive statistical analysis of variables was performed using SPSS 17.0 statistical software package (SPSS Inc., Chicago, IL, USA).

### Results

Thirty-two of the 57 questionnaires were returned, giving a response rate of 56%. Most of the respondents were aged 41–45 years ( $n = 11, 34.4\%$ ). Only one respondent was older than 60 years [Table 1]. Twenty-six (81.3%) respondents were males while 6 (18.8%) were females. Thirteen (40.6%) had practiced for <5 years while only 1 (3.1%) had practiced for over 20 years [Table 2]. Majority of the respondents (62.5%,  $n = 20$ ) practiced in the teaching hospitals, 28.1% ( $n = 9$ ) practiced in federal medical centers, while 3 (9.4%) were in military hospitals. There was no respondent from general hospital. Eighteen respondents (56.3%) practiced within the Southwest geopolitical zone, while 3.1% operate in the north central zone [Figure 1]. Forty-one percent ( $n = 13$ ) worked in centers where there were more than five maxillofacial surgeons, while 37.5% ( $n = 12$ ) were the only maxillofacial surgeons in their centers. Traumatology was the aspect of maxillofacial surgery practiced routinely by most respondents (81.3%,  $n = 26$ ) while implantology was the least practiced (15.6%,  $n = 5$ ). Eighty-four percent ( $n = 27$ ) of respondents did not subscribe to sub-specialization in oral and maxillofacial surgery; this include 75% ( $n = 15$ ) of those in teaching hospitals and 100% ( $n = 9$ ) of those in federal medical

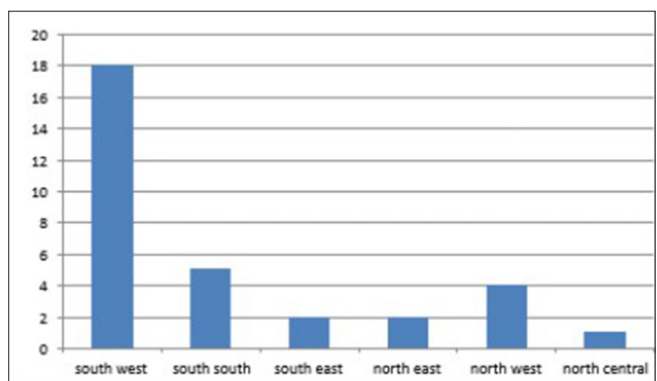
centers. Seventy-eight percent ( $n = 25$ ) of all respondents claimed to have satisfactory facilities for traumatology, dentolaveolar surgery, infection and cleft repair surgery, while facilities were least satisfactory in implantology and orthognathic surgery (15.6%,  $n = 5$  and 12.5%,  $n = 4$  respectively) [Table 3]. Amongst those that treat trauma, 62.5% ( $n = 20$ ) had primary interest in traumatology while only 9.4% ( $n = 3$ ) of those that practice implantology and temporomandibular joint surgery had primary interest in the respective areas [Table 4]. The highest single factor that would influence the choice of area of interest was financial reward (100% of respondents), while availability of appropriate facility would impart the least influence (8% of respondents) [Table 5]. Of all the respondents, 56.3% ( $n = 18$ ) spend up to 40% of their clinical/research time on their area of interest. Fifty percent ( $n = 16$ ) claimed to have adequate training while the remaining 50% admit inadequate training in their area of interest. Reasons

**Table 1: Frequency distribution of oral and maxillofacial surgeons by age in Nigeria**

Age range	Frequency	Percentage
36-40	8	25.0
41-45	11	34.4
46-50	5	15.6
51-55	2	6.3
56-60	5	15.6
>60	1	3.1
Total	32	100.0

**Table 2: Frequency distribution of years in practice of oral and maxillofacial surgeons in Nigeria**

Years in practice	Frequency	Percentage
<5	13	40.6
6-10	3	9.4
11-15	8	25.0
16-20	7	21.9
>20	1	3.1
Total	32	100.0



**Figure 1: Distribution of the location of practice of oral and maxillofacial surgeons in Nigeria**

**Table 3: Subspecialties and available facilities in oral and maxillofacial centers in Nigeria**

Subspecialty	Available facility (%)	
	Yes	No
Traumatology	25 (78.1)	7 (21.9)
Oral cancer	17 (53.1)	15 (46.9)
Dentoalveolar surgery	25 (78.1)	7 (21.9)
Infection and microbiology	25 (78.1)	7 (21.9)
Orthognathic	4 (12.5)	28 (87.5)
Implantology	5 (15.6)	27 (84.4)
TMJ surgery	15 (46.9)	17 (53.1)
Cleft lip and palate	25 (78.1)	7 (21.9)

TMJ=Temporomandibular joint

**Table 4: Subspecialties of interest of oral and maxillofacial surgeons in Nigeria**

Subspecialty	Subspecialty of interest (%)	
	Yes	No
Traumatology	20 (62.5)	12 (37.5)
Infection and microbiology	4 (12.5)	28 (87.5)
Dento-alveolar surgery	6 (18.8)	26 (81.3)
Oral cancer	17 (53.1)	15 (46.9)
Implantology	3 (9.4)	29 (90.6)
Orthognathic surgery	7 (21.9)	25 (78.1)
TMJ surgery	3 (9.4)	29 (90.6)
Cleft lip and palate	14 (43.8)	18 (56.3)

TMJ=Temporomandibular joint

**Table 5: Factors influencing choice/area of interest of subspecialties in oral and maxillo-facial surgery in Nigeria**

Factors	Influence on subspecialty of interest n (%)	
	Yes	No
Training/exposure	22 (68.8)	10 (31.3)
Availability of facilities	8 (25.0)	24 (75)
Sheer interest/flare	20 (62.5)	12 (37.5)
Financial reward	32 (100)	0 (0.0)
Research focus	16 (50.0)	16 (50)

given for noninvolvement in orthognathic surgery were poor facility ( $n = 15$ , 46.9%), limited training ( $n = 13$ , 40.6%), inadequate back-up/support services ( $n = 10$ , 31.3%), and patients' lack of motivation ( $n = 6$ , 18.8%). A little more than half of the respondents (53.1%,  $n = 17$ ) claimed to routinely perform open reduction and internal fixation of maxillofacial fractures using plates and screws osteosynthesis. The major reasons limiting the routine use of plates and screws include cost of treatment (75%,  $n = 24$ ) and nonavailability of materials and equipment at some centers (68.8%,  $n = 22$ ) [Table 6]. The greatest challenge to oncological maxillofacial surgery highlighted by most respondents (93.8%,  $n = 30$ ) was late presentation of patients, 21.9% ( $n = 7$ ) also believed that oncological service is not financially rewarding.

**Table 6: Factors influencing the use of plates and screws by oral and maxillofacial surgeons in Nigeria**

Factors of interest	Influence on the use of plates and screws n (%)	
	Yes	No
	Inadequate training	6 (18.8)
Nonavailability of materials/equipment	22 (68.8)	10 (31.3)
Patient's ability to afford plates/screws	24 (75.0)	8 (25.0)
Difficulty in getting supplies	12 (37.5)	20 (62.5)
Most patients do not require plates/screws	2 (6.3)	30 (93.8)
Traditional methods most often satisfactory	2 (6.3)	30 (93.8)

## Discussion

Maxillofacial surgery as a specialty is evolving the world over. It is however faced with the challenge of low levels of awareness amongst the public and health care practitioners, both in the West and the developing climes.<sup>[2-5]</sup> In Nigeria, the practice is probably further challenged by inadequate manpower and poor infrastructure. Therefore, it could be presumed that the scope of oral and maxillofacial surgical practice in Nigeria is probably limited, relative to what obtains in other part of the world. This study, to the best of the authors' knowledge, is the first effort at verifying the current level of practice and the factors influential to the development of the specialty in Nigeria. Though the response rate was barely more than half of the survey population, a reasonable cross-section of practicing maxillofacial surgeons was involved.

As reflected in this study, the distribution of surgeons along the country's geopolitical zones is largely skewed toward an obvious southern predominance. This could be directly related to the distribution of the maxillofacial training centers, which are more in the south. However, with the recent emergence of new centers all over the country; the Federal Medical Centers, this mal-distribution is likely to correct. This study also showed a preponderance of male surgeons (81.2%) that is consistent with previous findings affirming male dominance in most surgical specialties.<sup>[6,7]</sup>

Brennan *et al.* reported gender distribution of maxillofacial surgeons in Australia to be 91.3% male to 8.7% female.<sup>[8]</sup> Similarly McNally found 5% female applicants to oral and maxillofacial surgery training programs in the UK.<sup>[9]</sup> Our study however had a higher proportion of female (18.8%) in contrast to earlier studies, thus corroborating the recent trend toward gender gap closure in most medical and surgical specialties.<sup>[6,10]</sup> Similarly, greater proportions of surgeons in the present study were in the 41–45 (34.4%) and 36–40 (25%) years age groups. This is slightly less than that reported in a similar study in Australia<sup>[8]</sup> where most of the surgeons were in the 40–49 (32.6%) and 50–59 years age categories.

Brennan *et al.* also reported that the highest number of maxillofacial surgeons in Australia worked in both private and public hospitals, followed by private hospital alone, while only a minority worked in public hospitals alone.<sup>[8]</sup> Our finding is a pure contrast, in this case, all the respondent maxillofacial surgeons worked in public hospitals. None of the respondents worked in both private and public hospitals; reflecting the government policy in Nigeria, which does not encourage dual employment. Anecdotal reports have indeed stated that only one maxillofacial surgeon in Nigeria is currently in private employment. Reasons for this may include the huge financial and logistic demands of setting up a standard maxillofacial practice, lack of government funding and viable third party/insurance payer systems, poor private patronage and consequent low revenue from private practice due to the out-of-pocket payment systems, and the complex nature of maxillofacial surgery, which is sometimes multispecialty dependent.

Contrary to the finding of Brennan *et al.* who reported that the majority of maxillofacial surgeons in public sector were based in general hospitals,<sup>[8]</sup> none of the respondents in our study worked in general hospitals. In Nigeria, general hospitals are mostly state-owned; therefore the observation may be a reflection of the averagely better pay package, better equipment and surer job security obtainable with federal employment in Nigeria. Financial reward would have been a major determinant of the choice of area of interest for all respondents as it was the highest factor chosen by all respondents to influence subspecialty of interest. However in Nigeria where all maxillofacial surgeons are government employed, remuneration is the same for all surgeons in the same establishment irrespective of the aspect of practice. This however may explain why almost all surgeons are based in federal government establishment where remuneration tends to be better than all other public employments.

Traumatology is the aspect of maxillofacial surgery most widely practiced by respondents. This is consistent with findings from other studies.<sup>[8,11,12]</sup> Trauma remains a major problem in both developing and developed countries<sup>[13,14]</sup> and the head and neck region is often disposed of to injuries.<sup>[15]</sup> Although open reduction and internal fixation with plates and screws have become the gold standard, just a little more than half of the respondents in this study routinely perform open reduction with plates and screws osteosynthesis. This finding is consistent with previous reports from this region that also stated financial constraints and limited access to materials as limitations.<sup>[7,16,17]</sup> On the other hand, most respondents practice all aspects of maxillofacial surgery with only few teaching hospital-based surgeons having specific areas of subspecialty interests. The current nonpopularity of sub-specialization is adducible to various reasons, most probably; the emerging nature of oral and maxillofacial surgery in Nigeria.

Most surgeons in the present study had satisfactory facilities for traumatology, dentolaveolar surgery, infection management and orofacial cleft surgery, while facilities are generally inadequate for implant dentistry, orthognathic surgery, and oncology. This is probably a question of priority and demand. The former group of conditions are often acutely distressful and sometimes life-threatening thereby gaining priority. On the other hand, the latter group of services may be viewed as purely cosmetic. Therefore, they are mostly elective, naturally more expensive and perhaps less likely to be considered priority by hospital management.

The greatest challenge facing oncological maxillofacial surgery identified in this study is late patients' presentation. This behavior has been previously associated with ignorance and poverty.<sup>[18,19]</sup> Poverty is still widespread in Nigerian with about 63% of the population living on <\$1/day.<sup>[20]</sup>

The area of interest and scope of practice of the surgeon is generally influenced by both prequalification (during training) and postqualification (after training) experience. As observed by Brennan, insufficient exposure affects the competence and hence area of interest.<sup>[8]</sup> In the present study, surgeons indicated inadequate training as a factor limiting the practice of their interest. Training as well as sufficient clientele to practice with is true essentials for developing competence. Other factors highlighted are poor facility for certain aspects of the practice, inadequate back-up/support service, patients' lack of interest and patients' inability to pay for the service. These factors are truly capable of shriveling subspecialty interests as surgeons resolve to do just anything and everything practicable within the level of skills and resources available to them.

This cross-sectional study has revealed the relative deficiency in the scope of oral and maxillofacial surgical practice in Nigeria compared to what obtains globally. In particular, maxillofacial oncology, implantology, and orthognathic practices are grossly suboptimal. The factors to contributing to the current state have been highlighted ranging from inadequate training to funding, infrastructural and policy-related issues. These problems tend to stifle initiatives for sub-specialization that is germane to the optimal development of the maxillofacial specialty.

## Conclusion

The present pattern of maxillofacial surgery practice as well as factors influencing the practice has been described. To the best of the authors' knowledge, this is the first report evaluating the pattern of practice and factors influencing the services rendered by oral and maxillofacial surgeons in Nigeria. The scope of practice of oral and maxillofacial surgery is largely limited in the country relative to what obtains globally with oncology, implantology and

orthognathic surgery receiving little attention. This will not only affect service, but training in our institutions and our global marketability. The number and spread of surgeons also need to be addressed so that the services provided by this group of specialist will be made available to teaming population. Though the sample size is small, it is a fair reflection of the size of the population studied as Oral and maxillofacial surgery is evolving in the country. However, a follow-up study with a sample size more reflective of the current population of practitioners in Nigeria is desirable.

## References

1. Iscp Oral and Maxillofacial Surgery Curriculum. Available from: [http://www.gmc-uk.org/OMFS\\_curriculum\\_2010.pdf\\_32485129.pdf](http://www.gmc-uk.org/OMFS_curriculum_2010.pdf_32485129.pdf). [Last accessed on 2013 Aug 22].
2. Hunter MJ, Rubeiz T, Rose L. Recognition of the scope of oral and maxillofacial surgery by the public and health care professionals. *J Oral Maxillofac Surg* 1996;54:1227-32.
3. Ifeacho SN, Malhi GK, James G. Perception by the public and medical profession of oral and maxillofacial surgery – Has it changed after 10 years? *Br J Oral Maxillofac Surg* 2005;43:289-93.
4. Subhashraj K, Subramaniam B. Awareness of the specialty of oral and maxillofacial surgery among health care professionals in Pondicherry, India. *J Oral Maxillofac Surg* 2008;66:2330-4.
5. Adewole RA, Akinwande JA. Public and professional perception of oral and maxillofacial surgery (a pilot study). *Nig Q J Hosp Med* 2007;17:8-12.
6. Cortés-Flores AO, Fuentes-Orozco C, López-Ramírez MK, Velázquez-Ramírez GA, Fariás-Llamas OA, Olivares-Becerra JJ, *et al.* Academic medicine and gender: Women in surgical specialties. *Gac Med Mex* 2005;141:341-4.
7. McManus IC, Sproston KA. Women in hospital medicine in the United Kingdom: Glass ceiling, preference, prejudice or cohort effect? *J Epidemiol Community Health* 2000;54:10-6.
8. Brennan DS, Spencer AJ, Singh KA, Teusner DN, Goss AN. Practice activity trends among oral and maxillofacial surgeons in Australia. *BMC Health Serv Res* 2004;4:37.
9. McNally SA. Competition ratios for different specialties and the effect of gender and immigration status. *J R Soc Med* 2008;101:489-92.
10. Elisabeth CD, Donald AR, Patrice GB, Ajit KS. Women in surgery residency programs: Evolving trends from a national perspective. *J Am Coll Surg* 2011;212:320-6.
11. Ajike SO, Arotiba JT, Adebola RA, Ladehinde A, Amole IO. Spectrum of oral and maxillofacial surgical procedures in Kano, Nigeria. *West Indian Med J* 2005;53:9-12.
12. Adebayo ET, Ajike SO, Abite MG. Audit of oral and maxillofacial surgical conditions seen at Port Harcourt, Nigeria. *Ann Afr Med* 2008;7:29-34.
13. Hofman K, Primack A, Keusch G, Hrynkow S. Addressing the growing burden of trauma and injury in low- and middle-income countries. *Am J Public Health* 2005;95:13-7.
14. Segui-Gomez M, MacKenzie EJ. Measuring the public health impact of injuries. *Epidemiol Rev* 2003;25:3-19.
15. Madubueze CC, Chukwu CO, Omoke NI, Oyakhilome OP, Ozo C. Road traffic injuries as seen in a Nigerian teaching hospital. *Int Orthop* 2011;35:743-6.
16. Adeyemo WL, Ladeinde AL, Ogunlewe MO, James O. Trends and characteristics of oral and maxillofacial injuries in Nigeria: A review of the literature. *Head Face Med* 2005;1:7.
17. Ajike SO, Adebayo ET, Amanyiewe EU, Ononiwu CN. An epidemiologic survey of maxillofacial fractures and concomitant injuries in Kaduna, Nigeria. *Niger J Surg Res* 2005;7:251-5.
18. Oji C. Late presentation of orofacial tumours. *J Craniomaxillofac Surg* 1999;27:94-9.
19. Obiadazie AC, Agbara R, Okeke U, Adeola DS, Basseyy GO. Challenges of reconstructing mandibular defects following tumour surgeries at Zaria, Nigeria. Illustrating with two cases. *Glob Res J Med Sci* 2013;3:12-9.
20. Population Below Poverty Line. CIA World Factbook. [http://www.indexmundi.com/nigeria/population\\_below\\_poverty\\_line.html](http://www.indexmundi.com/nigeria/population_below_poverty_line.html). [Last accessed on 2013 Dec 06].

**How to cite this article:** Akinmoladun VI, Gbolahan OO, Akadir OA, Akinyamoju CA. Evaluation of the scope and practice of oral and maxillofacial surgery in Nigeria. *Niger J Clin Pract* 2015;18:282-6.  
**Source of Support:** Nil, **Conflict of Interest:** None declared.