



## A survey of challenges and career aspirations of clinical dental students in Nigerian universities

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### Abstract

**Objective:** The study assessed undergraduate challenges and career aspirations of clinical dental students in Nigerian Universities.

**Method:** A cross-sectional study in which all clinical dental students were evaluated. Data collection was by self-administered questionnaires distributed to the study population, which required demographic information location of dental school, entry qualification, choice of dentistry as a career, assessment of the dental programme and improvements suggest to make a difference in the programme.

**Results:** There were 197 respondents, 98 males (49.7%) and 99 females (50.3%). Male: female was 1:1.01, mean age was 24.9 ( $\pm 2.8$ ). The majority, 191 (97.0%) were admitted through the Joint Admission Matriculation Board Examinations (JAMB-E). Benin dental school had the highest number of students, 77 (39.1%). One hundred and ninety-four (98.47%) of these Nigerian students were from the southern geo-political zones of the country. Undefined curriculum (23.86%), lack of dental materials (20.3%) and faulty equipment (18.78%) were the commonest constraints reported by the students during the undergraduate training. The need for improved clinical teaching and supervision by consultants was recommended by 31.47% of the students. Significantly more females wanted to specialize in paedodontics ( $p=0.00$ ) and more males in oral and maxillofacial surgery ( $p=0.00$ ).

**Conclusion:** While provision of formal lectures was considered satisfactory in most of the dental schools, a definite need for improvement in the clinical aspect of training was reported by the students. This included chair side teaching and provision of materials for patient management. Lack of a well defined and specific curriculum was perceived as a major problem in some of the dental schools.

**Key Words:** Dental education, students, career aspirations

### Introduction

There are presently five accredited dental schools present in Nigeria, situated in Lagos, Ibadan, Ile-Ife, Benin and Enugu. Of this number four dental schools situated in Lagos, Ibadan, Ile-Ife and Benin were selected for the study. Dental education started in Nigeria at the Lagos Dental School in 1964. The dental program is a 6 year program with admission through the Joint Admission Matriculation Board (JAMB). The first year in the University entails a review of major entry subjects, physics, chemistry, biology and with an introduction into General African Studies. The next two years are spent in the basic medical sciences: Anatomy, Biochemistry and Physiology with emphasis on oral anatomy and oral biology in the third year. This is followed in the fourth year with clinical training in medical subjects such as Microbiology, Pharmacology, Pathology, and Psychology, Anesthesia, Medicine and Surgery (emphasis is on patient management in accident and emergency situations). Introduction to dental core subjects starts during this period of the program starting with an understanding of the mechanics and techniques of dentistry. The emphasis

in the clinical years that follow is the acquisition and mastery of dental clinical skills. Hands on teaching starts immediately, initially with the use of mannequins followed closely by exposure to live patients under close clinical supervision. The need for sound knowledge of medical conditions is further emphasized. In addition to the dental core subjects, the Lagos dental school has incorporated the primary oral health care program into its dental program. Postgraduate training in dentistry is carried out in accredited teaching hospitals and under the two main training institutions, National Postgraduate Medical College of Nigeria and the West African College of Surgeons. The postgraduate training of dentists in Nigeria is similar to that in the United Kingdom<sup>(2,3)</sup>, tailored towards the production of specialists in dentistry. Reports on medical and dental education have often shown that some specialties are far more preferred than others by students<sup>(2-8)</sup>. Since students' beliefs and attitudes are known to influence career preferences and performance levels, it is important to understand these attitudes. The selection of a career is a critical decision in that has an obvious impact on a future life pattern<sup>(9,10)</sup>. In occupational decision process, for some individuals; preference, decision and choice are

the same; for others, totally different careers may be involved in each of these three steps<sup>(10)</sup>. When this philosophy is applied to dentistry as a career, it is clear that enrolment in Dental School is an excellent indicator of choice, probably a fair indicator of preference<sup>(10)</sup>. However, the need to specialize and choice of specialty may be determined by a number of factors<sup>(2-6)</sup>.

The present study assessed the challenges, specialty preferences and career aspirations of clinical dental students in four dental schools in Nigeria. It is hoped that information from the study will assist in improving the academic and non-academic conditions in the dental schools whilst improving the image of dentistry in the country.

### Materials and method

All the clinical dental students (500 and 600 level) in four dental schools in Nigeria were recruited into the study. A self-administered structured questionnaire was used for the study. The questionnaire was pre-tested on a sample of 25 randomly selected dental students. Modifications were made to remove areas of ambiguity in the final questionnaire. The students were informed about the nature of the study and confidentiality was assured. A total of 220 questionnaires were distributed. One hundred and ninety seven (89.5%) questionnaires duly completed were used for the final analysis.

The questionnaire sought to determine the students' socio-demographic background such as age, sex, ethnicity, entry qualifications and family background. The respondents were asked about their choice of dentistry as a career, assessment of the dental programme and to state improvements they felt will make a difference. They were also asked to state their plans on completion of the programme. Those who planned to specialize were requested to state their choice of specialty.

The questions were in various forms: the majority were standardized or close-ended. Others were open-ended, one or two utilized Likert 5-point scale. The questions called for both subjective and objective responses. The students were asked to state 3 challenges faced in order of priority starting with the most difficult.

Data collected were analyzed using the Epi-info 2002 statistical package. Both descriptive and inferential statistics were employed. The level of significance was set at  $p < 0.05$ .

### Result

#### Socio-demographic Characteristics of the Study Sample

A total of 197 clinical dental students participated in the study. There were ninety-eight (49.7%) males and ninety-nine (50.3%) females. The male: female ratio was 1: 1.01. The age range was 19 years to 34 years, (mean of  $24.9 \pm 2.8$ ). Benin dental school had the highest number of students, 39.1%. Only twelve (6.1%) of the students were married, while 64.97% lived on campus.

All the students studied were Nigerians. The majority of students, 194 (98.47%) were from the states in the southern geo-political zones of Nigeria. One hundred and twenty-one (61.42%) of the students had a health professional in

their nuclear family. (Table 1)

Almost all the students, 191 (97.0%) were admitted into the dental program through the Joint Admission Matriculation Board Examinations (JAMB-E). Sixty-four (32.5%) students chose dentistry as first course of choice. Medicine and pharmacy were first choice courses for 63.5% and 4.0% of the students respectively. Only 12 (18.75%) students chose dentistry as first course out of personal interest.

When asked to state the most important difficulty faced during their undergraduate training, lack of specific dental curriculum, lack of dental materials and problems with equipment were cited by 47 (23.86%), 40 (20.3%) and 37 (18.78%) of the students respectively. Other common problems were industrial action by teaching and non-teaching staff and non-availability of funds. Lack of a well defined and specific curriculum which students could follow was the most cited problem in Obafemi Awolowo University and University of Benin, showing 38.08% and 37.41% respectively, inadequate supply of dental materials was the greatest problem reported in University of Lagos, (57.75%) while lack of equipment (28.56%), greatly affected training in University of Ibadan. Inadequate lectures were rarely considered a problem among students from the various dental schools. (Table 2)

(Table 3) shows the distribution of the suggestions for improvement for the dental program: more chair side teaching and clinical supervision by consultants/ academic staff was recommended by 62 (31.47%) of the students, use of audio-visuals with multimedia facilities by 47 (23.8%) and more hands on time in clinics by 36 (18.3%) were the most common suggestions by this group of students.

One hundred and twenty six (63.96%) planned to pursue postgraduate training in a dental specialty. However, 23 (11.67%) planned to change careers and 36 (18.27%) had no plans. (Table 4)

The most popular specialty among this group of students was Oral and Maxillofacial Surgery (OMFS) as expressed by 75 (38.07%), while Orthodontics and Conservative dentistry were preferred by 17.77% and 15.74% respectively. The differences observed between the sexes in choice of specialty were significant for OMFS and Paedodontics ( $p = 0.00$ ). (Table 5)

(Figure 1) shows the perceived capacity and aptitude requirements for dentists among the students studied. Manual dexterity and good vision were considered highly relevant for success in dentistry by 86.8% and 79.0% of the students respectively, while 44.66% indicated that communication skill with people of different races or tribes was important for success in dental practice

### Discussion

The vision in most dental schools is that those selected as dentists of the future are capable learners, fascinated by knowledge and research, open minded, communicative and socially competent<sup>(11)</sup>. They should also be ready to provide good oral health services at the preventive and curative levels of the dental profession.

The dental education literature shows that significant challenges are being faced by educators and students in recent years<sup>(12,13)</sup>. The majority of these problems have to do



**Table 1. Socio-demographic characteristics of students**

Characteristic	Variable	No.	%
1. Gender	Male	98	49.7
	Female	99	50.3
	Male: Female=	1:1.01	
2. Age	Range	19 years-34.08 years	
	Mean	24.92 years ± 2.82	
3. Dental school	Lagos	57	28.9
	Ibadan	42	21.3
	Obafemi Awolowo	21	10.7
	Benin	77	39.1
4. Marital status	Single/never married	185	93.9
	Married	12	6.1
5. Accommodation	Campus/hostel	128	64.97
	Off campus	69	35.03
6. Mode of entry	JAMB-E	191	97.0
	Direct	3	1.5
	Others	3	1.5
7. Course of first choice	Dentistry	64	32.5
	Medicine	125	63.5
	Pharmacy	8	4.0
8. Geopolitical zone	North West	0	0.00
	North East	1	0.51
	North Central	2	1.02
	South East	28	14.21
	South South	72	36.55
9. Health professional in nuclear family	Yes	121	61.42
	No	76	38.58

with funding and the availability of qualified full-time faculty members especially in dental schools in developing countries. The effectiveness of educational teaching methods used in these dental schools is questionable and student satisfaction with the educational process is certainly lower than expected<sup>(12)</sup>. These challenges can become very frustrating and discouraging over a long period of time<sup>(11-13)</sup>. Challenges faced by dental students can be both academic and non-academic. The data from the present study shows that clinical dental students were faced with a number of challenges during their undergraduate training. The factor identified as the most important problem was the dental curriculum followed by lack of dental materials. The lack of a well-defined and specific goal oriented curriculum was a major problem perceived by students in Obafemi Awolowo, Ibadan and Benin Universities. The curriculum was not, however, an issue among students of the School of Dental Sciences, University of Lagos. This may be due to the fact that the school has reviewed and updated its curriculum to make learning easier and more enjoyable as well as a more conducive environment for the academic staff. The students of Lagos however did complain that a major problem was with availability of dental materials for patient treatment. In more developed international environments where these constraints are not present, studies have shown that fear of failure and excess work are the greatest challenges faced by students<sup>(11-14)</sup>.

Observations from the present study show that the majority of students were in campus hostel accommodation and were relatively satisfied with the living conditions and academic environment. This may be explained by the level of independence on campus, less stress of commuting to school and non-exposure to stress

**Table 2. Problems faced during undergraduate training by students studied**

Problem	Lagos		Ibadan		Obafemi Awolowo		Benin		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Equipment	8	14	12	28.56	3	14.28	14	18.0	37	18.78
Industrial action	2	3.5	3	7.14	2	9.52	6	7.74	13	6.6
Patients	1	1.75	0	0	1	4.76	0	0	2	1.02
Attitude of staff	1	1.75	0	0	0	0	4	5.16	5	2.54
Supervision	5	8.75	3	7.14	0	0	4	5.16	12	6.09
Curriculum	2	3.5	8	19.04	8	38.08	29	37.4	47	23.86
Textbooks	3	5.25	4	9.52	1	4.76	4	5.16	12	6.09
funds	1	1.75	8	19.04	1	4.76	8	10.0	18	9.14
Dental material	33	57.75	1	2.38	4	19.04	2	2.58	40	20.3
Environment	1	1.75	0	0	0	0	3	3.87	4	2.03
Electricity / water	0	0	2	7.46	0	0	1	1.29	3	1.5
Poor Lecture	0	0	1	2.38	0	0	2	2.58	3	1.5
None	0	0	0	0	1	4.76	0	0	1	0.15
Total	57		42		21		77		197	100.0



**Table 3. Improvements suggested for dental program by group of students**

	No.	%
Improved use of audio-visuals	47	23.8
More time in clinics hands on	36	18.3
More chair-side teaching by consultants/lecturers	62	31.47
Access to current literature in the library	19	9.64
Others	25	12.69
No response	8	4.06
<b>Total</b>	<b>197</b>	<b>100.00</b>

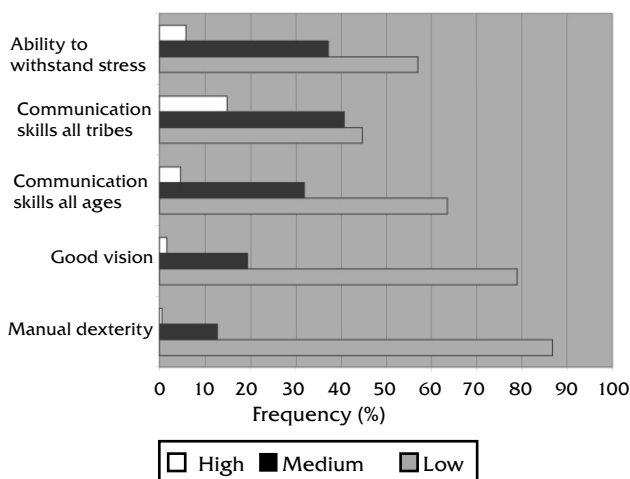
**Table 4. Plans on completion of dental program**

Plan	No.	%
Post graduate training	126	63.9
General dental practice	12	6.1
Change careers	23	11.7
No plans yet	36	18.3
<b>TOTAL</b>	<b>197</b>	<b>100.00</b>

**Table 5. Preferred specialty of the study population**

Preferred specialty	Male No. (%)	Female No. (%)	Total No. (%)	P value
Community dentistry	4	11	15(7.61)	0.0628900
Dental pharmacology	1	1	2(1.02)	0.74813
Forensic dentistry	1	2	3(1.52)	0.5038266
General dental practice	3	3	6(3.05)	0.6538583
Oral maxillofacial surgery	55	20	75(38.07)	0.0000002
Oral pathology	1	1	2(1.02)	0.7487310
Orthodontics	13	22	35(17.77)	0.1000754
Paedodontics	3	18	21(10.66)	0.0005850
Prosthetics	2	5	7(3.55)	0.2265189
Restorative dentistry	15	16	31(15.74)	0.8690451
TOTAL	98	99	197(100)	

Key: \* = p value significant, \*\* Fischer's exact test applied.



**Figure 1:** Perceived capacity requirements for dentistry by students studied

related factors which may be experienced with home stay. The group of students, who participated in the present study, recommended the use of audio-visuals with multimedia for lectures and more chair side teaching by consultants and lecturers. Over three-quarters of the students were of the opinion that manual dexterity, good

vision were very important requirements for a successful career in dentistry. The ability to withstand stress was a relevant factor in 57.1% of the students. Direct comparisons with other reports in the literature are hampered by the differences in methodology and type of assessment done. However, some studies in the literature have found that students' stress level appeared to decline as students get into the third and clinical years<sup>12-14</sup>. Studies in the literature on dental education have also reported that conservative dentistry (which depended strongly on the availability of functional equipment, an abundant supply of dental materials and good flow of patients) was a common source of stress among dental students<sup>(12,14,15)</sup>.

Almost two-thirds, of students from the present study would like to specialize. This is lower than results from an earlier report in Nigeria, where 88.6% planned on specialization on graduation<sup>(2)</sup>. In addition it was disappointing to note that more than one tenth of these students planned on a career change. These observations may be explained by the challenging economic situation in the country and the recent crave for more lucrative job opportunities abroad and in the banking and finance industry<sup>(3,4)</sup>. Oral and maxillofacial surgery (OMFS) was the most popular specialty among this group of students as with similar findings locally<sup>(2,4)</sup> and internationally<sup>(15)</sup>. The reasons adduced for this observation include the fact that OMFS is the closest dental specialty to medicine, which



becomes very relevant if the students' primary interest was medicine. It is also reported that specializing in OMFS enhances the dental surgeons' opportunities and professional status<sup>(2,3)</sup>. Observations from the present study on the very low popularity for specialization in oral pathology and dental pharmacology were similar to previous reports<sup>(2,4)</sup>. It is however believed that these specialties can be developed to be more attractive to students.

Significant differences were observed between the sexes in specialty choice. Males were more likely to specialize in OMFS and females in paedodontics. This may be explained by the fact that OMFS is relatively more tasking, more hours in surgeries, attendance to trauma and emergencies and greater need for call duty. Males will find the specialty more acceptable. However there's a greater need for women to be in specialties with regular work hours so they can combine career development effectively with domestic demands and chores.

It is important that dental schools be informed on the challenges faced by students so that they can be effectively assisted with finding lasting solutions to these problems. Focus group discussions and seminars can be given to highlight problems and possible solutions by way of orientation, counseling and stress management programmes. Dental education does not need to follow a traditional pattern but should be primarily tailored to the oral health care needs, demands and resources of each country. Dental educators in particular lecturers should conduct themselves in such a way that they are seen as role models. Effective assistance from teaching staff, faculty administrators and even families is essential. A problem based learning curriculum can be introduced. There should be provision of maximum clinical availability to students so as to give them greater flexibility in accomplishing integrated clinical teaching and patient centered education. There is a need to encourage more interest in dentistry among those from the northern geo-political zone in Nigeria and it is envisaged that this may be achieved by setting up a dental school in one of the northern states. This will also improve the oral health awareness these areas.

### Conclusion

The findings of this study showed that the majority of the students, mostly from the Southern part of the country, did not choose dentistry as their first choice. While the provision of formal lectures was considered satisfactory in most dental schools, a definite need for improvement in the clinical aspect of training, including chair side teaching and provision of both materials and equipment for patient management was reported. Lack of a well defined and specific curriculum was perceived as a major problem in some dental schools. Almost two thirds of the students planned to specialize, with Oral and Maxillo-facial surgery being the most popular choice of specialty. However, over one tenth of the students planned on a total career change.

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