

Orthodontic Training in Nigeria: The residents' perspective

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Abstract

Background: The purpose of this study was to determine the scope of the training of Nigerian orthodontic residents and to investigate their satisfaction with their programme.

Methods: A 34 item survey was sent to all Nigerian orthodontic residents in July 2010. Data were assembled and categorized by different variables, and chi-square comparative analyses were performed.

Results: Twenty-eight out of 37 residents responded, giving a participation rate of 75.7 percent. Overall, 46.4% of responding residents were satisfied with their programme. Only one respondent (3.6%) felt the amount of dedicated academic time was sufficient. Fourteen (50%) residents indicated their programme offered training in numerous treatment philosophies. Most (85.7%) perceived they had sufficient clinical based training, and 28.6% indicated that their research based training was sufficient. Only 25% reported that their programme had a balanced plan for the care of disabled or underserved patients. Most respondents (71.4%) felt they will be adequately prepared to provide unsupervised orthodontic care after graduation. The residents indicated they collaborated mostly with Oral Surgery, Paedodontics, Periodontics, and Radiology specialties. However, only 60.7% indicated they had a formal interdisciplinary programme for treating patients.

Conclusion: This study concluded that many Nigerian orthodontic residents are not satisfied with their programmes. They also felt a need for more time in their programme for didactic teaching and research work.

Keywords: Orthodontics, Education, Residency training, Nigeria

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Introduction

The purpose of orthodontic education is **T**o produce a graduate with the diagnostic, clinical, and management skills to allow him or her to master almost any situation¹. There have been considerable changes in the field of orthodontics in recent years. These include rapid developments in the principles of growth and development, increased number of adult patients with development of various newer attachment techniques, improved anchorage devices, use of laser in orthodontics, and lingual orthodontics. These changes will certainly continue and alter the way orthodontics is practiced.

Surveys of orthodontic residents in the United States²⁻⁴, United Kingdom⁵, and in Canada⁶ have been widely published. These studies

revealed a high level of satisfaction with their residency training programmes.

Historically, Nigerian universities have taught the basic principles of orthodontics and have only recently adopted some of the new teaching techniques. Some studies have reported trends and development in Nigerian orthodontic education^{7,8}, but none has been documented on the orthodontic residents' demographics and opinions on their orthodontic educational experiences.

Material and Methods

This study received approval from the Lagos State University Teaching Hospital Research Ethics Board. The heads of all the Nigerian orthodontic residency programmes were contacted, and permission was obtained to contact their residents to complete the survey. A 34-item questionnaire was sent to all 37 residents enrolled in this orthodontic residency programme in July 2010. Questions were multiple choice, close ended and anonymous.

The survey was divided into sections including demographics, satisfaction with programme and evaluation of the programme. Data from the survey were compiled into an

Excel 2003 spreadsheet (Microsoft, Seattle, Wash) and categorized by demographic variables. Descriptive statistics and comparative analyses using chi-square testing were done with the Statistical Package for the Social Sciences software (version 11.0, SPSS, Chicago, Ill) by sex, age and year of program. Statistical significance was set at $P < 0.05$.

Results

Of the 37 total questionnaires distributed, 28 were completed and returned, for a response rate of 75.7%.

Demographics

Of the respondents, 12 (42.9%) were male, and 16 (57.1%) were female; most were in the 30 to 34 years of age category. Table 1 shows the sex, age, and the year of programme of the residents who completed the survey.

Evaluation of Programme

Dental specialties that orthodontic residents collaborated with in their training included Paedodontics, Oral Surgery, Periodontics, Oral medicine, Prosthodontics, Endodontics, and Radiology (Figure 2); however, only 60.7% indicated they have a formal

Table 1. Demographics of respondents to the questionnaire

Respondents	Number (%)
Age (y)	
<25	0 (0.0)
25-29	3 (10.7)
30-34	14 (50.0)
35-39	7 (25.0)
>40	4 (14.3)
Sex	
Male	12 (42.9)
Female	16 (57.1)
Year in program	
Junior Registrar	6 (57.1)
Senior Registrar II	5 (17.1)
Senior Registrar I	7 (25.0)

Chi-squared analysis showed no significant differences between age categories, sex, and year of programmes ($P > 0.05$) for any categories of results. Seven (25%) of the residents completed other formal education other than the required dental degree before entering orthodontic training (Table 2).

Table 2. Additional credentials in addition to the dental degree

	Number of residents (n = 28)	Percent %
Bachelor's degree	1	3.6
Master's degree	3	10.7
Diploma	2	7.1
Doctorate/Ph.D.	1	3.6
None	21	75.0

The amount of exposure to orthodontics in dental school was perceived to be sufficient by 12 (42.9%) residents (Table 3).

Table 3. Amount of exposure to orthodontics in dental school

	Number of residents (n = 28)	Percent (%)
Right amount of exposure	12	42.9
Too little exposure	6	57.1

Overall Satisfaction

Overall, 46.4% of responding residents were either “very satisfied” or “satisfied” with their residency programme (Figure 1).

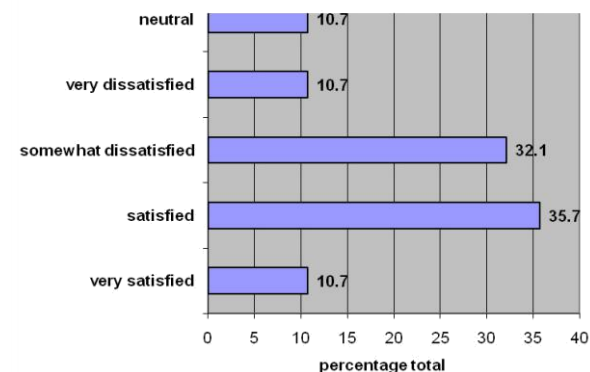


Figure 1. Satisfaction of orthodontic residents with their programs.

Only one (3.6%) resident perceived the amount of dedicated teaching time in orthodontic residency programme to be sufficient (Table 4).

While most residents (85.7%) perceived the amount of clinical-based training to be sufficient (Table 5); only 8 (28.6%) perceived the amount of research-based training to be sufficient (Table 6).

Table 4. Perception of the amount of formal teaching time

	Number of residents (n = 28)	Percent (%)
Sufficient	1	3.6
Insufficient	27	96.4

Table 5. Perception of the amount of clinical-based training

	Number of residents (n = 28)	Percent (%)
Sufficient	24	85.7
Insufficient	4	14.3

Table 6. Perception of the amount of research-based training

	Number of residents (n = 28)	Percent (%)
Sufficient	8	28.6
Insufficient	20	71.4

Exposure to numerous treatment philosophies were perceived to be sufficient by one-half of the respondents. Most of the residents (71.4%) felt they will be adequately prepared to provide unsupervised orthodontic care after graduation.

interdisciplinary programme for treating patients.

Only 25% felt their programme had a balance between education and care of the disabled or underserved patients.

Discussion

There has not been any published study on the Nigerian orthodontic residency programme. Recently, literature revealed three surveys of orthodontic residents from the United States²⁻⁴,

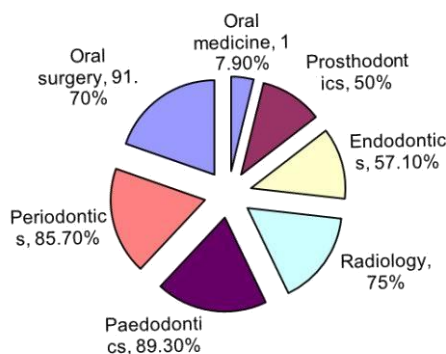


Fig 2: Dental specialties that orthodontic residents said they collaborate with in their training (n=28), residents were allowed to choose multiple answers.

a survey of residents in Canada⁶, and in the United Kingdom⁵. In 1994, Keith and Proffit² published the results of a survey of 168 US residents at the Graduate Orthodontic Residents Program conference, representing 81% of those attending. Bruner et al³ conducted a similar study in 2003 at the same meeting in addition to mailing a survey to residents who did not attend the meeting, with a response rate of 77%. In 2009, Noble et al⁴ conducted an anonymous electronic survey of US residents with a response rate of 40.6%. Keith et al⁵ published a survey of orthodontic residents in the UK with responses from 57 residents a response rate of 64%. Noble et al⁶ also conducted a survey of orthodontic residents in Canada with a response rate of 81.5%. Our response rate of 75.7% was comparable with that of Bruner et al³ of 77% in the US.

In this Nigerian study, women in orthodontic training far outnumbered their men counterpart. A survey of gender distribution of Dentists in Nigeria⁹ revealed that over a twenty-year period, there has been a consistent rise in female Dental Practitioners from 15.3% in 1981 to 35.1% at the end of 2000; and projected that gender balance will be attained in the year 2015. This gender pattern is possibly being reflected in the orthodontic postgraduate training.

Similarities exists in Nigerian residents' views on the amount of orthodontics exposed to in dental school with the views of recent undergraduates in the United Kingdom on their undergraduate dental curriculum in which 46% of the respondents felt able to treat a simple orthodontic case with removable appliances¹⁰. It has also been reported that orthodontics occupies a small proportion of total undergraduate curriculum hours in most European countries¹¹.

Overall Satisfaction

Our study found that only 46.4% of respondents in Nigeria were satisfied with their programme. This suggests that Nigerian orthodontic residency programmes are not meeting the subjective needs of their residents.

There is therefore a need for Heads of these programmes to put in place periodic feedback sessions, year-end reviews, and regular surveys in order to identify reasons for their concerns about the programmes. It is worthy of note however, that a higher percentage of 75.7% and 86.4% of United States and Canadian orthodontic residents respectively were satisfied with their programmes^{4,6}. This observation may be due to individual group differences, interaction between the faculty and the residents as well as differences in curriculum and length of programme.

The amount of dedicated didactic teaching sessions was felt to be sufficient by 60.3% of United States residents⁴ and 66% of Canadian residents⁶, by only 3.6% of Nigerian orthodontic residents. This suggests an academic crisis existing in Nigeria with a shortage of full-time faculty instructors.

Most Nigerian (85.7%) responding residents said they have the right amount of clinical based training. This likely is a reflection of more available clinical time in the period available for the program which is a minimum of 4 years. However, fewer Nigerian residents (28.6%) indicated their research-based training to be sufficient as compared with their Canadian counterparts (73%). This difference may be a reflection of the requirement in Canadian programmes that residents have already earned a master of science degree⁴. This finding suggests that Nigerian residents may welcome a required master of science component in their orthodontic programme. Studies sponsored by American Association of Orthodontists found that the research aspect of orthodontic programme has been decreasing while the clinical aspect has been increasing. The authors asserted that this may be due to residents being more interested in more clinical experience, and also because these programmes are increasingly expected to generate more revenue¹³. A complication of this approach is the dearth of graduates of residency programme interested in pursuing academic and research careers.

The perception of Nigerian responding to

residents of insufficient exposure to numerous treatment philosophies may be related to inadequate amount of dedicated teaching time, as less time is available for didactic treatment planning sessions.

Evaluation of the Programme

It is disturbing that only 60.7% of responding residents indicated their program has a formal interdisciplinary programme for treating patients. In line with the current recommendation of comprehensive interdisciplinary care in dentistry, orthodontic residency programs should promote a team approach to treatment, and include interdisciplinary seminars and treatment planning sessions. These will provide residents the opportunity to learn interdisciplinary communication and teamwork, as well as provide the best available treatment for their patients.

Nigerian orthodontic residents indicated that they most collaborate with Oral Surgery, Paedodontics, Periodontics, and radiology (Figure 2). This finding can be used to institute formal interdisciplinary learning programmes by organizing seminars and treatment planning sessions with instructors and specialists in these areas.

More responding residents in the United States (92.7%) and Canada (86.4%) when compared to Nigeria (71.4%) felt adequately prepared to enter the work force after graduation. However, this is a subjective assessment of their clinical ability, and may not be accurate. While some residents may say they feel ready for clinical practice, they may not have adequate experience to appropriately judge their actual abilities. Furthermore, the more lengthy program may have provided Nigerian residents more time to see more cases, and in turn appreciate the complexity of some cases, and difficulty that may exist in diagnosis, treatment planning, and finishing certain orthodontic cases. This may cause apprehension and distort the true extent of their knowledge and ability.

orthodontic Only 25% of Nigerian residents

our survey indicated that their programme provides care for disabled or underserved patients, which is significantly less than the responding United States residents⁴ of 91%. Patients of lower socioeconomic status who are unable to access private orthodontic care because of high fees seek care at reduced cost at academic dental institutions. Orthodontic programs in Nigeria need to fulfil this important social service, while instilling a sense of social responsibility in their residents. Future studies are needed. Firstly to investigate the motivations of the Nigerian residents into undergoing orthodontic residency programme . Secondly, to investigate their future plans to evaluate how many of these residents plan to pursue academic careers after graduating in order to forestall serious crisis in orthodontic education.

Conclusion

This survey found that more responding orthodontic residents in Nigeria are not satisfied with their programme. Nigerian orthodontic residents felt a need for more time in their programme for didactic teaching and research. Nigerian orthodontic residents perceived a need for more exposure to orthodontics at the undergraduate level. Nigerian orthodontic residency programmes could improve opportunities for their residents by improving interdisciplinary treatment protocols and provision of care to underserved populations and disabled patients.

Contributors

Yemitan TA was responsible for the concept and design, interpretation of data, critical revision of the article and final approval of version to be published. Bamgbose OJ was responsible acquisition of data, analysis of data and drafting the article. Fadeju AD was responsible for acquisition of data, analysis of data, drafting the article

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