Undergraduate dental education in Nigeria: perceptions of dental students and recent dental graduates

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Abstract

Background: Students' perception of their education is a subject that has received very little attention by those providing dental school education. This is more so in the Nigerian environment, where limited research has been carried out in dental education, particularly with respect to the students’ perspectives on the quality of training received.

Objective: Thus, the aim of this study was to determine the perceptions of dental students and recent dental graduates in Nigeria on their level of satisfaction with the quality of academic and clinical training received in their respective dental schools and the challenges faced in receiving this training.

Methods: This was a cross-sectional descriptive study carried out amongst 271 dental students and recent dental graduates from eight dental schools in the country. Ethical approval for the study was obtained from the Institutional Review Board of the Lagos University Teaching Hospital (LUTH). Data collection was via self-administered questionnaires. Statistical analysis was carried out using SPSS 17.

Results: The final study sample was made up of 239 students, with a mean age of 24.57 (2.21) years. The two dental specialties in which the least level of satisfaction was recorded with regard to the quality of academic training received were Conservative Dentistry and Orthodontics, while for clinical training they were Conservative Dentistry and Oral Biology/Pathology. The three most common factors which were adversely affecting the quality of clinical training received were, poor electricity supply, insufficient dental chairs and quality of training received.

Conclusion: Dental students and recent graduates of Nigerian Dental schools are not satisfied with the quality of undergraduate training received in some dental specialties at their respective dental schools.

Résumé

Enseignement dentaire de premier cycle au Nigéria : perceptions des étudiants en médecine dentaire et soins dentaires diplômés

Contexte : La perception des étudiants à l’égard de leur formation est un sujet qui ne sollicite que peu d’attention de la part de ceux qui dispensent l’enseignement dentaire. Cela est d’autant plus le cas au Nigéria, où peu de recherches sont faites dans l’enseignement dentaire, en particulier en ce qui concerne le point de vue des élèves sur la qualité de la formation reçue.

Objectif : Ainsi, le but de cette étude était de déterminer les perceptions des étudiants et les récents diplômés en médecine dentaire au Nigéria en ce qui concerne leur niveau de satisfaction de la qualité de la formation universitaire et clinique reçue dans leurs écoles dentaires respectives et les défis rencontrés au moment de cette formation.
Méthodes : C'était une étude descriptive transversale conduite parmi 271 étudiants en médecine dentaire et des diplômés dentaires récents de huit écoles dentaires du pays. L'approbation éthique pour l'étude a été obtenue à partir de la Commission d'étude de l'Institution (Institutional Review Board) de l'Hôpital universitaire de Lagos (LUTH). La collecte des données a été faite au moyen de questionnaires auto-administrés. L'analyse statistique a été réalisée à l'aide de SPSS 17.

Résultats : L'échantillon final de l'étude était composé de 239 étudiants, avec un âge moyen de 24,57 (2,21) ans. Les deux spécialités dentaires où un moindre degré de satisfaction a été enregistré en ce qui concerne la qualité de la formation académique reçue étaient la dentisterie conservatrice et l'orthodontie, tandis que pour la formation clinique, c'était la dentisterie conservatrice et la patho-biologie orale. Les trois facteurs les plus courants qui ont influencé défavorablement la qualité de la formation clinique reçue étaient : mauvaise alimentation électrique, fauteuils dentaires insuffisants et qualité de la formation reçue.

Conclusion : Les étudiants en dentisterie et les diplômés récents des écoles dentaires nigérians ne sont pas satisfaits de la qualité de la formation de premier cycle qui est donnée dans certaines spécialités dentaires dans leurs écoles et universités respectives.

Introduction

The importance of the environment surrounding education in academic dental institutions is being evaluated on a constant scale internationally (1).

This would help to identify the quality of such educational climate and further provide an ideal opportunity for students to reflect on their educational experience.

Moreover, when this feedback is properly channeled to the students, their response can assist educators to objectively assess different aspects of education being provided and seek the relevant areas for improvement.

The learning environment itself is fundamental to effective student learning, and has been shown to significantly impact the attitudes and professional progress of students and is critical for both personal and social well-being (1, 2).

Undergraduate Dental training Institutions have the responsibility of ensuring that future dentists are being nurtured in a supportive and challenging environment that promotes learning in a positive way (2-4).

Indeed, a number of factors such as class size, teaching methods, assessment procedures, relations with peers and the Faculty, ethical climate, and extracurricular activities, may significantly influence the perception and experience of students (5).

Undergraduate dental education is designed to train and produce dentists who upon their graduation should demonstrate the desired learning outcomes of knowledge, skill and attitudes directed towards professionalism, communication, clinical management and leadership skills (6).

The Medical and Dental Council of Nigeria recommends a six-year training program for undergraduate dental students.

The curriculum which currently has four parts, includes clinical dentistry which encompasses paedodontics, orthodontics, restorative dentistry, oral and maxillofacial surgery, oral pathology and oral medicine, periodontology, dental and maxillofacial radiology and community dentistry (7).

These specialties may vary from one dental school to another within Nigeria. There are currently nine Dental schools in Nigeria and they are all owned by the Federal Government, with none of them being run by a Private University.
In resource limited countries such as Nigeria, where funding for education is inadequate, coupled with the poor infrastructural facilities, the need for constant evaluation of the impact of the educational environment on dentistry training has never been greater than now. Thus, it is important to evaluate the views and perspectives of dental students on a constant basis being the end users. Furthermore, dental educators and mentors should make their teaching student-oriented/centered as much as possible for optimum results.

In a developing country like Nigeria, the experiences of dental students should be captured in the course of their training in a systematic manner to improve the overall quality of their training in Nigeria so that they can be at par with their contemporaries in other climes of the world.

A very recent study conducted by the authors amongst dental students and recent graduates in one of the Dental schools in Nigeria found that most of the respondents were not satisfied with the quality of undergraduate training received in some of their dental specialties. Their dissatisfaction was associated with infrastructural limitations including poor electricity supply and inadequate dental chairs and materials for training (8).

This study was however restricted to the views from a single dental school. Studies from other institutions which would be more representative of Nigerian Dental schools are lacking. The feedback from these would permit Dental educators and policy makers to plan more effectively at a national level, thereby improving dental education in Nigeria.

Thus, the aim of the present study was to assess the perception of dental students and recent dental graduates of Nigerian Dental schools on the quality of undergraduate training received and the challenges they faced in receiving this training.

**Methodology**

Ethical approval for the study was obtained from the Institutional Review Board of the Lagos University Teaching Hospital and informed consent was obtained from the students, prior to their participation in the study. This was a cross-sectional descriptive study carried out among undergraduate dental students in their fifth and sixth year of study and House Officers undergoing their training within such dental training institutions.

The study was carried out in eight out of the nine dental schools currently in Nigeria, The University of Maiduguri dental school was excluded from the study due to the current security concerns in the North Eastern part of the Country.

Students from the following dental schools were involved in the study: Universities of Lagos, Ibadan, Ife, Benin, Port-Harcourt, Nigeria (Nsukka), Lagos State University (Lasucom) and Bayero University Kano.

A purposive sampling technique was used in selecting subjects for the study.

The inclusion criteria for the study included, all dental students in the dental schools listed above who were willing to participate in the study and who were in their penultimate (500 level) or final year (600 Level) of study. House-officers/recently graduated students who had not spent more than two years’ post-graduation from the dental school were also included.

The exclusion criteria for the study included: Lack of consent to participate in the study; dental students who were not in their penultimate (500 level) or final year (600 Level) of study and dental graduates who had spent over two years since graduation from the dental school.

Data collection for the study, was carried out using a self-administered questionnaire.
The questionnaire had three sections: These three sections (Sections I-III) utilized Likert Scales to assess respondents’ perspectives.

In Section I, respondents were asked to rate the quality of academic training received in different dental specialties taught at the dental school. In Section II, respondents were asked to rate the quality of clinical training received in different dental specialties taught at the dental school.

For sections I and II, the responses were scored on a five-point scale (1, indicating very satisfied; 2, somewhat satisfied; 3, dissatisfied; 4, somewhat dissatisfied and 5, very dissatisfied).

In Section III, respondents were asked to rate the extent to which different factors had adversely affected the quality of clinical training they had received. These factors were divided into four main categories, namely:

I. Infrastructure, such as water, electricity supply, availability of dental chairs and dental materials;

II. Patient factors including patients’ availability and ability to afford treatment;

III. Learning resources: library and internet access.

IV. Faculty: Quality of training received and mentorship.

Responses in this section were made on a 6 point Likert scale from 0 to 5, with 0 indicating that the factor had not impacted their clinical training negatively and 5 indicating that it had greatly affected their training negatively.

Statistical analysis was carried out using the statistical package for social sciences, SPSS version 17.0 (IBM SPSS Inc. Chicago Illinois). Descriptive statistics were used to describe the age and gender distribution of the students, according to their different schools. Frequency distributions were generated for categorical variables, while means and standard deviations for continuous variables.

The level of significance was set at $p < 0.05$.

**Results**

A total of 271 questionnaires were distributed across the eight dental schools during the study, but 239 questionnaires were returned, thus the response rate was 88.19%. The mean age of the respondents was 24.57 years (2.21). The gender distribution of the students was almost equal with 121 (50.6%) of them being females and 118 (49.4%) being males.

Table 1 shows the distribution of the study participants across the eight schools, while Obafemi Awolowo University Dental School had the highest number of participants with fifty-one students (21.33%), Bayero University Kano Dental School had the lowest percentage of participants in the study with six students 2.51%.

Table 2 shows the respondents’ ratings on their perceived level of satisfaction with the quality of academic undergraduate training they received in their respective dental schools. The two dental specialties/courses which recorded the least level of satisfaction, in this
regard, amongst the respondents were Conservative Dentistry (Lagos, Port-Harcourt, Kano and Nsukka) and Orthodontics (Ife, Benin, Port-Harcourt, Nsukka).

The three dental specialties/courses, in which respondents across all dental schools were most satisfied with the quality of academic dental training received, were Oral and Maxillofacial Surgery, Oral Diagnosis and Paediatric Dentistry.

Table 3 shows the respondents’ ratings on their perceived level of satisfaction with the quality of the clinical undergraduate dental training they received in their respective dental schools. The dental specialties/courses, which recorded the least level of satisfaction, in this regard, amongst the respondents were Conservative Dentistry (Lagos, Port-Harcourt, Kano and Nsukka) and Oral Biology and Oral Pathology (Lagos, Ife and Nsukka).

The two dental specialties with which respondents across all dental schools were most satisfied with the quality of clinical dental training received, were Oral Diagnosis, Oral/Maxillofacial Surgery and Periodontology.

Table 4 shows the most adverse factor affecting the quality of clinical training received in each of the respective Dental schools, based on the respondents’ ratings. The three most commonly recorded factors were; insufficient dental materials and dental chairs, patient availability and the quality of training received.
Table 3: Mean Likert scale ratings by the respondents, on their level of satisfaction with the quality of Clinical training received in the different dental specialties

<table>
<thead>
<tr>
<th></th>
<th>Lagos</th>
<th>Ibadan</th>
<th>Ife</th>
<th>Benin</th>
<th>Lasu</th>
<th>Port-Harcourt</th>
<th>Kano</th>
<th>Nsukka</th>
<th>Final Mean score</th>
</tr>
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<tr>
<td>Oral diagnosis</td>
<td>1.91</td>
<td>1.54</td>
<td>1.86</td>
<td>1.94</td>
<td>1.71</td>
<td>1.40</td>
<td>1.60</td>
<td>1.60</td>
<td>1.70</td>
</tr>
<tr>
<td>Orthodontics</td>
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<td>1.88</td>
<td>2.82</td>
<td>1.97</td>
<td>2.00</td>
<td>1.50</td>
<td>2.00</td>
<td>2.11</td>
<td>2.02</td>
</tr>
<tr>
<td>Periodontology</td>
<td>1.79</td>
<td>1.85</td>
<td>1.86</td>
<td>1.94</td>
<td>2.00</td>
<td>1.70</td>
<td>2.00</td>
<td>2.25</td>
<td>1.80</td>
</tr>
<tr>
<td>Oral Medicine</td>
<td>1.75</td>
<td>1.69</td>
<td>1.76</td>
<td>1.69</td>
<td>2.07</td>
<td>1.56</td>
<td>2.00</td>
<td>2.25</td>
<td>1.85</td>
</tr>
<tr>
<td>Oral biology/Oral Pathology</td>
<td>2.30</td>
<td>1.79</td>
<td>2.94</td>
<td>1.58</td>
<td>2.08</td>
<td>1.22</td>
<td>1.80</td>
<td>2.56</td>
<td>2.03</td>
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<tr>
<td>Community Dentistry</td>
<td>1.97</td>
<td>2.08</td>
<td>2.00</td>
<td>1.83</td>
<td>2.08</td>
<td>1.50</td>
<td>2.67</td>
<td>2.44</td>
<td>2.07</td>
</tr>
<tr>
<td>Paediatric Dentistry</td>
<td>1.84</td>
<td>1.83</td>
<td>1.71</td>
<td>1.72</td>
<td>2.23</td>
<td>1.20</td>
<td>1.80</td>
<td>2.44</td>
<td>1.85</td>
</tr>
<tr>
<td>Conservative Dentistry</td>
<td>2.39</td>
<td>1.98</td>
<td>2.12</td>
<td>1.72</td>
<td>2.20</td>
<td>1.50</td>
<td>4.00</td>
<td>2.11</td>
<td>2.25</td>
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<tr>
<td>Prosthetic Dentistry</td>
<td>2.20</td>
<td>1.85</td>
<td>2.24</td>
<td>1.71</td>
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<td>2.40</td>
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<td>1.95</td>
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<tr>
<td>Oral/Maxillofacial Surgery</td>
<td>1.91</td>
<td>1.66</td>
<td>1.84</td>
<td>1.72</td>
<td>2.07</td>
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<td>1.80</td>
<td>1.78</td>
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<tr>
<td>Final mean per school</td>
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<td>1.82</td>
<td>2.12</td>
<td>1.78</td>
<td>2.06</td>
<td>1.43</td>
<td>2.11</td>
<td>2.12</td>
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</tr>
</tbody>
</table>

Table 4: Respondents’ ratings of the factors most adversely affecting the quality of clinical dental training received in each dental school

<table>
<thead>
<tr>
<th></th>
<th>Lagos</th>
<th>Ibadan</th>
<th>Ife</th>
<th>Benin</th>
<th>Lasu</th>
<th>Port-Harcourt</th>
<th>Kano</th>
<th>Nsukka</th>
<th>Mean</th>
</tr>
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<td>Water availability</td>
<td>3.05</td>
<td>3.03</td>
<td>2.80</td>
<td>2.90</td>
<td>2.85</td>
<td>2.22</td>
<td>1.67</td>
<td>2.80</td>
<td>2.67</td>
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<td>Poor electricity supply</td>
<td>3.53</td>
<td>3.45</td>
<td>2.50</td>
<td>2.93</td>
<td>3.29</td>
<td>2.78</td>
<td>1.33</td>
<td>2.50</td>
<td>2.79</td>
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<tr>
<td>Insufficient dental chairs</td>
<td>3.49</td>
<td>3.18</td>
<td>3.00</td>
<td>3.00</td>
<td>3.43</td>
<td>3.00</td>
<td>1.50</td>
<td>3.00</td>
<td>2.95</td>
</tr>
<tr>
<td>Insufficient dental materials</td>
<td>3.34</td>
<td>3.15</td>
<td>3.40</td>
<td>3.22</td>
<td>3.36</td>
<td>2.22</td>
<td>1.80</td>
<td>3.40</td>
<td>2.99</td>
</tr>
<tr>
<td>Patient availability</td>
<td>3.10</td>
<td>3.24</td>
<td>2.80</td>
<td>3.12</td>
<td>3.21</td>
<td>2.78</td>
<td>2.17</td>
<td>2.80</td>
<td>2.90</td>
</tr>
<tr>
<td>Patient ability to afford treatment</td>
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<td>3.30</td>
<td>2.60</td>
<td>2.80</td>
<td>3.17</td>
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<td>1.67</td>
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<td>2.73</td>
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<td>Library facilities</td>
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<td>2.66</td>
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<td>1.67</td>
<td>1.50</td>
<td>3.00</td>
<td>2.44</td>
</tr>
<tr>
<td>Internet availability</td>
<td>2.54</td>
<td>2.88</td>
<td>3.22</td>
<td>2.52</td>
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<td>1.67</td>
<td>3.00</td>
<td>3.22</td>
<td>2.77</td>
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<tr>
<td>Quality of training received</td>
<td>2.79</td>
<td>2.76</td>
<td>3.50</td>
<td>3.20</td>
<td>3.36</td>
<td>2.22</td>
<td>1.83</td>
<td>3.50</td>
<td>2.90</td>
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<td>Mentorship</td>
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<td>3.29</td>
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<td>2.11</td>
<td>1.67</td>
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<td>2.78</td>
</tr>
<tr>
<td>Mean score</td>
<td>3.04</td>
<td>2.89</td>
<td>3.00</td>
<td>2.96</td>
<td>3.21</td>
<td>2.31</td>
<td>1.81</td>
<td>3.00</td>
<td>2.78</td>
</tr>
</tbody>
</table>
Discussion

Students’ perceptions of their health professional environments have increasingly been studied in the past few decades, because the learning environment plays a key role in determining the ultimate success of these graduates as healthcare professionals (9).

Thus, the findings from this study are of key relevance to planning dental undergraduate education in Nigeria. This is because it provides a feedback to dental trainers across the country on the students’ perspectives on the quality of training received across different dental specialties in their respective dental schools.

Results from this study, show that the respondents’ perspectives were different across the various dental schools for the different dental specialties/courses. However, there were also some similarities. It is instructive to note that Conservative dentistry recorded the lowest level of satisfaction for the academic training received by students in four (50%) of the dental schools surveyed: Lagos, Port Harcourt, Kano and Nsukka; while it was also the second least satisfactory course recorded by respondents from the Ibadan Dental School. Furthermore, with respect to clinical training, it was the course which recorded the lowest level of satisfaction among respondents from half of the schools surveyed, namely Lagos, Ibadan, Lasu and Kano. Conservative dentistry is the branch of dentistry which is concerned with the conservation of teeth in the mouth. It embraces the practice of operative dentistry and endodontics, and includes various kinds of direct and indirect restorations of individual teeth in the mouth. Thus, its importance to the proper training of dental students cannot be overemphasized. The findings from this study are similar to that reported for final year dental students in an Indian Dental school, in which Restorative dentistry procedures, represented the aspect of dentistry, in which the greatest percentage of students recorded limited confidence (10). However, this finding points to the fact that there may be fundamental problems in the way Conservative dentistry is currently being taught as a course across dental schools in Nigeria.

Considering the fact that Conservative Dentistry constitutes a significant portion of clinical dental practice, this has to be urgently addressed.

A possible cause for the low level of satisfaction, with the clinical training in Conservative received by the students in Lagos and Ibadan, may be associated with the poor electricity supply which was reported by students in both schools, as the factor most adversely affecting the quality of clinical training they received. This is further based on the fact that both the laboratory (phantom head), chairside and hands-on training required for conservative dentistry are heavily dependent on the availability of a constant electricity supply to power the equipment required for training and practice.

With respect to the Lagos State University Dental School, the low level of satisfaction recorded with the clinical training in conservative dentistry may be associated with the insufficient number of dental chairs available to the students for treating patients, which they recorded as the most adverse factor affecting their clinical training. However, these reasons are at variance with that reported in Indian dental students (10) which showed that the low level of confidence of reported by the students in Restorative dentistry, was not associated with infrastructural challenges as the students reported that they had sufficient materials to work with and that the learning environment was conducive. Thus, it is also possible that the low level of satisfaction with
conservative dentistry may also be unassociated with the conducive learning environment available in those schools. However, this does not eliminate the need to ensure that a conducive learning environment for conservative dentistry and other aspects of dental practice are created for dental students across all dental schools in the Country.

It is instructive to note that Oral and Maxillofacial Surgery were the two courses surveyed across the eight dental schools, in which the students recorded the highest level of satisfaction with respect to both academic and clinical training. This is an indication of the fact that dental students across the country are currently satisfied with the quality of training received in both courses.

The findings from this study, that the two major factors most adversely affecting the clinical training of the students, were insufficient dental chairs and dental materials, reinforce the findings from a previous study by SOFOLA and JEBODA (11) that the most important stressors affecting dental students in Nigeria are the lack of provision of a well-supported system of dental education i.e. the availability of materials for clinical training and study materials.

A major limitation of this study is the fact that students’ perceptions alone is not completely adequate to assess the quality of training provided in the dental school and this has been highlighted by the authors in a previous study. This is particularly so because of the presence of confounding variables, such as students’ personal biases for particular courses and the extent their exposure to a specialty area, as previously highlighted. Thus, the importance of getting the views of other stakeholders, particularly the Faculty, on the quality of training provided, cannot be over-emphasized. However, since the focus of our study was restricted to the perspectives of students and recent dental graduates, we did not consider seeking the opinion of other stakeholders.

It is hoped that the findings of this study would be utilized in planning and revising the curriculum for undergraduate dental education in Nigeria and that it would also guide the faculty in various dental schools in the country on ways of improving the quality of training currently being provided.

**Conclusion**

Dental students and recent graduates of the Nigerian Dental schools are not satisfied with the quality of undergraduate training currently received in some of the dental specialties taught at the respective schools. This dissatisfaction may be associated with infrastructural limitations such as inadequate dental chairs and materials for training and also the quality of training received. This study has also highlighted the challenges faced by the students in their undergraduate clinical training.

**Recommendations**

There is an urgent need for the government to increase the funding currently provided for dental education in the country, in order to address the infrastructural deficiencies in the different dental schools. There might also be a need to introduce bench fees for dental students across the country as a mean of supplementing the income received from Government. This would go a long way in creating a conducive learning environment in the different dental schools.
References


Médecine d’Afrique Noire sur internet

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