PERCEPTIONS OF DENTAL STUDENTS AND RECENT GRADUATES OF A NIGERIAN DENTAL SCHOOL ON THE QUALITY OF UNDERGRADUATE TRAINING RECEIVED

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ABSTRACT
Undergraduate dental education is very demanding and rigorous for the dental students, particularly in a country like Nigeria, where there are limited resources available to support dental education. Self-administered questionnaires were distributed to final year dental students and recently graduated dentists (house-officers) from the University of Lagos Dental School. The questionnaires had three sections, each utilizing likert scales to assess the respondents' perceptions on different aspects of their undergraduate dental training Data analysis was carried out using the Statistical Package for Social Sciences software, (SPSS) version 17, Chicago III. Seventy-seven students and recent graduates participated in the study. Oral medicine recorded the highest level of satisfaction among the participants for both academic and clinical training. In contrast, conservative dentistry recorded the least level of satisfaction for both academic and clinical training, respectively. Electricity supply was rated as the factor most adversely affecting clinical training while the quality of training received from faculty was rated as the least adverse factor, affecting clinical training.Dental students and recent graduates of the University of Lagos Dental School are not satisfied with the quality of undergraduate training received in some dental specialties at the dental school. This dissatisfaction may be associated with infrastructural limitations such as poor electricity supply and inadequate dental chairs and materials for training.

Keywords: Undergraduate dental education, Perceptions of students, Quality of training.

INTRODUCTION

Undergraduate dental education is designed to train and produce dentists who upon their graduation would have met the desired learning outcomes of knowledge, skill and attitudes directed towards professionalism, communication, clinical management and leadership skills (GDC, 2008). Furthermore, the standards for dental education should ensure adequate patient protection, quality evaluation and review, student assessment and equality and diversity (GDC, 2012). The quality of teaching received by undergraduate students which should ensure these learning outcomes may however be influenced by the educational environment .These may in turn impact the attitudes and professional progress of students significantly which in the long run could affect their personal and social well-being (Audin *et al.*, 2003). Dentistry requires a high level of intelligence, patience and a great degree of manual dexterity. The educational process should give confidence to the students about their overall patient care, if the process is qualitative.

The Medical and Dental Council of Nigeria recommends a 6 year training program for undergraduate dental students. The curriculum currently has four parts. The first part,

which takes place in the first year of training, involves the study of the basic science subjects: physics, chemistry, biology and general studies. The second part comprises a basic medical and dental science phase that introduces students to the foundations of human structure and function including courses like anatomy, histology, biochemistry, physiology and oral biology. In the third part, clinical medical sciences that address the function and disorders of human organ systems are studied. The fourth and last part is the dentistry phase, which includes the clinical dental sciences. This dentistry phase can further be subdivided into basic dentistry (comprising basic, pediatric and advanced operative techniques and the science of dental materials) and clinical dentistry. The clinical dentistry phase encompasses paedodontics, orthodontics, restorative dentistry, oral and maxillofacial surgery, oral pathology and oral medicine, periodontology, dental and maxillofacial radiology and community dentistry (MDCN, 2006).

Thus, dentistry is a very demanding and challenging profession. The Nigerian medical and dental education system in particular is facing several challenges at the moment, including decayed infrastructure, misplaced priorities, and inadequate resources. This may thus negatively affect the students who may be unable to adequately translate their knowledge of basic sciences to public health approaches to disease prevention and optimum patient care (MEPIN, 2011). Dental education requires academic and clinical training that need to be carried out in a conducive environment. Adequate infrastructure is also required to ensure that optimum training is achieved (Audin *et al.,* 2003; Henzi *et al.*, 2005).

A broad overview of the University of Lagos dental curriculum shows that it extensively covers all aspects of dentistry required for clinical dental practice (Isiekwe *et al.,* 2013). In spite of this, the dental curriculum needs to be regularly reviewed and evaluated, in order to offer dental courses which are in tune/in line with contemporary innovations in dental practice and the demands of the community oral health (Bulgareli *et al.,* 2012).

The perspectives of dental students about their educational experiences are an essential component of curriculum planning, since they can direct program changes that enhance teaching (Martins *et al.,* 2012). In a developing country such as Nigeria, dental students experience a lot of challenges during their training, thus, their perspective/feedback on the quality of training received and the challenges faced, is very important. This would go a long way in improving the quality of training received and also enhance the overall quality of dental education in the Country. Thus, the aim of the present study was to assess the perceptions of dental students and recent dental graduates of a Nigerian Dental school on the quality of undergraduate training received.

METHODOLOGY

This was a cross-sectional descriptive study carried out in the University of Lagos Dental School. The study population comprised undergraduate dental students of the school, in their final year of study and recently graduated dentists from the school who were undergoing their housemanship at the Lagos University Teaching Hospital. Data

collection for the study was via self-administered questionnaires. The questionnaires contained three sections, which utilized Likert Scales to assess respondents' perspectives. In Section 1, respondents were asked to rate the quality of academic training received in different dental specialties taught at the dental school. In Section 2, respondents were asked to rate the quality of clinical training received in different dental specialties taught at the dental school.

For sections 1 and 2, 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 3, 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, which included such things as water, electricity supply, availability of dental chairs and dental materials;
ii. Patient factors including patient availability and patients' 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.

Data analysis was carried out using the Statistical Package for Social Sciences (SPSS) version 17, Chicago III. The percentage distribution of the respondents' ratings of the quality of academic and clinical training received was computed. In addition, mean Likert scale score ratings, were computed for each dental specialty. Fisher's exact tests were used to compare the perceptions of the final year students with those of the house-officers, on their ratings of the quality of academic and clinical training they had received. The level of significance was set at $p<0.05$.

RESULTS

The questionnaires were distributed to 80 students and recent dental graduates, but only 77 of them actually responded. Thus, the response rate was thus 96.25%. Thirty-nine (50.6%) of the respondents were house officers and the remaining 38 (49.4%) were 600 level dental students, i.e students in their final year of study.

In terms of respondents' ratings of academic and clinical training, Oral medicine recorded the lowest mean scores of 1.63 and 1.71, respectively, thus reflecting the course with highest level of satisfaction in terms of training, by the respondents. This was followed by Periodontology which recorded mean Likert scale scores of 1.73 and 1.77; for academic and clinical training respectively (Figs. 1 and 2). The highest mean

score, which reflects the lowest level of satisfaction recorded of all the courses surveyed, was recorded in Conservative dentistry, with mean likert scale values of 2.29 and 2.59, for academic and clinical training, respectively. The mean Likert scale scores recorded for the other courses surveyed, based on respondents' ratings of quality of academic and clinical training received, are shown in Figs. 1 and 2.

Oral medicine also recorded the greatest percentage of study participants who were 'very satisfied' (46.1%, 44.2%, respectively) with the quality of academic and clinical training received. This was also closely followed by Periodontology, for which 42.9%, of the participants were 'very satisfied' with both academic and clinical training received. In contrast, conservative dentistry also recorded the least percentage of participants who were 'very satisfied' with both academic (20.8%) and clinical (21.0%) training and this was closely followed by prosthetic dentistry (24.0%, 20.8%, respectively) The distributions of respondents' ratings of the quality of academic and clinical training received, are shown in Tables 1 and 2.

A comparison of the Likert-scale ratings of the final year dental students (600 Level students) with the house-officers, on the quality of academic training, revealed statistically significant differences in the ratings for five specialty areas: namely Oral Diagnosis, Periodontology, Oral medicine, Community dentistry and Orthodontics. In each of these five specialties, a much greater percentage of the house-officers were 'very satisfied' with the training received as compared to the final year students. Of the five specialties the most significant difference was recorded in Orthodontics (p=0.001), (Table 3). With respect to clinical training, the only two specialty areas, in which significant differences were observed between the ratings by the students and house-officers, were Orthodontics and Oral Medicine. As observed with the academic training, a much greater percentage of the house-officers were 'very satisfied' with the clinical training received in both specialties, as compared to the final year students. Orthodontics also recorded a greater significant difference in the ratings (p=0.007), as compared to Oral Medicine (p=0.025) (Table 4).

With respect to factors that were adversely affecting the quality of training received, poor electricity supply recorded the highest mean Likert scale score with (4.49) indicating that of all the factors listed, this was the factor most adversely affecting the clinical training of the students. This was closely followed by availability (or non-availability) of dental materials (4.47) and inadequate dental chairs (4.39), while the least recorded factor was the quality of training received from faculty members with a mean Likert scale score of 3.74. (Fig. 3)

Table 1: Perceptions of students and recent graduates on the quality of academic training received

Likert-scale Score / Dental Specialty	1 (Very satisfied) n (%)	2 (Somewhat satisfied) n (%)	3 (Dissatisfied) n (%)	4 (Somewhat dissatisfied) n (%)	5 (Very dissatisfied) n (%)
Oral diagnosis	30 (39.5%)	36 (47.4%)	6 (7.9%)	1 (1.3%)	3 (3.9%)
Periodontology	33 (42.9%)	38 (49.4%)	1 (1.3%)	4 (5.2%)	1 (1.3%)
Oral medicine	35 (46.1%)	36 (47.4%)	3 (3.9%)	2 (2.6%)	0 (0.0%)
Community dentistry	21 (27.3%)	40 (51.9%)	10 (13.0%)	3 (3.9%)	3 (3.9%)
Orthodontics	29 (37.7%)	40 (51.9%)	6 (7.8%)	1 (1.3%)	1 (1.3%)
Paedodontics	27 (35.5%)	42 (55.3%)	4 (5.3%)	3 (3.9%)	1 (1.3%)
Oral biology/ Pathology	22 (28.6%)	44 (57.1%)	9 (11.7%)	1 (1.3%)	1 (1.3%)
Conservative dentistry	16 (20.8%)	39 (50.6%)	12 (15.6%)	4 (5.2%)	6 (7.8%)
Prosthetic dentistry	18 (24.0%)	41 (54.7%)	9 (12.0%)	4 (5.3%)	3 (4.0%)
Oral and maxillofacial surgery	31 (40.3%)	38 (49.4%)	5 (6.5%)	3 (3.9%)	0 (0.0%)

Table 2: Perceptions of students and recent graduates on quality of clinical training received

Likert-scale Score / Dental Specialty	1 (Very satisfied) n (%)	2 (Somewhat satisfied) n (%)	3 (Dissatisfied) n (%)	4 (Somewhat dissatisfied) n (%)	5 (Very dissatisfied) n (%)
Oral diagnosis	28 (36.8%)	39 (51.3%)	3 (3.9%)	1 (1.3%)	5 (6.6%)
Periodontology	33 (42.9%)	36 (46.8%)	4 (5.2%)	1 (1.3%)	3 (3.9%)
Oral medicine	34 (44.2%)	38 (49.4%)	1 (1.3%)	1 (1.3%)	3 (3.9%)
Community dentistry	20 (26.3%)	37 (48.7%)	14 (18.4%)	2 (2.6%)	3 (3.9%)
Orthodontics	21 (27.3%)	43 (55.8%)	10 (13%)	0 (0.0%)	3 (3.9%)
Paedodontics	28 (36.4%)	42 (54.5%)	3 (3.9%)	2 (2.6%)	2 (2.6%)
Oral biology/ Pathology	20 (26%)	43 (55.8%)	11 (14.3%)	1 (1.3%)	2 (2.6%)
Conservative dentistry	16 (21%)	29 (38.2%)	20 (26.3%)	2 (2.6%)	9 (11.8%)
Prosthetic dentistry	16 (20.8%)	41 (53.2%)	13 (16.9%)	2 (2.6%)	5 (6.5%)
Oral and maxillofacial surgery	30 (39.0%)	39 (50.6%)	5 (6.5%)	1 (1.3%)	2 (2.6%)

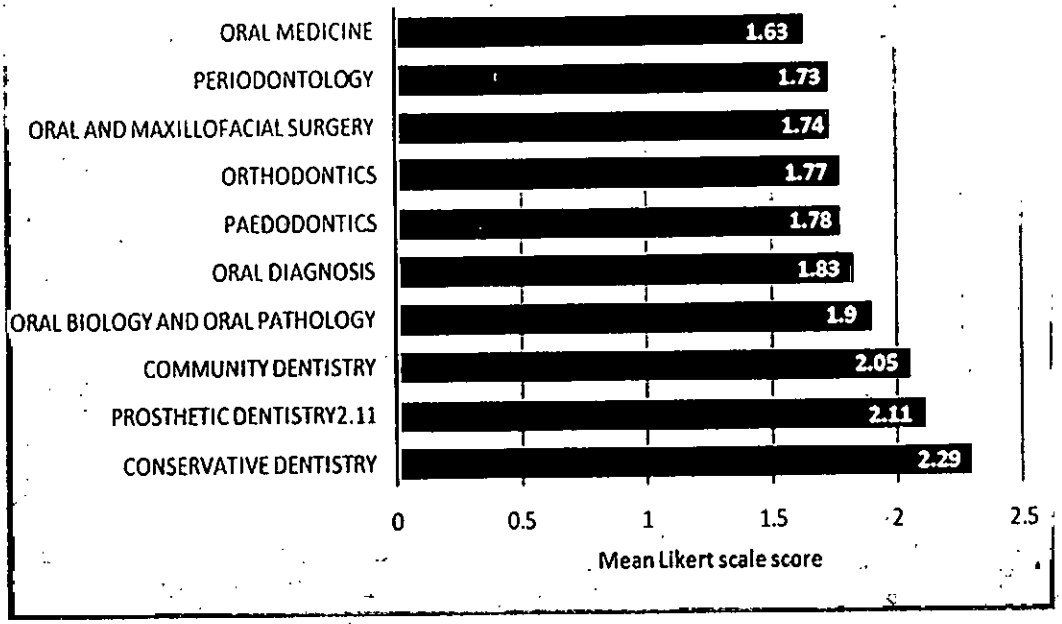

Fig. 1: Mean Likert scale scores for respondents' ratings of quality of academic training received.

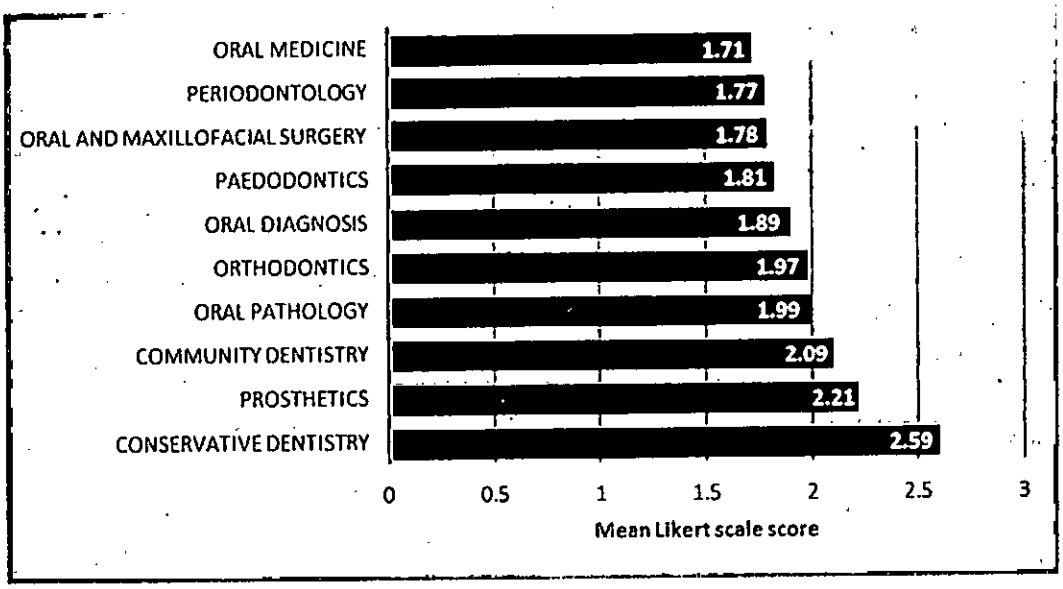

Fig. 2: Mean Likert scale scores for respondents' ratings of quality of clinical training received.

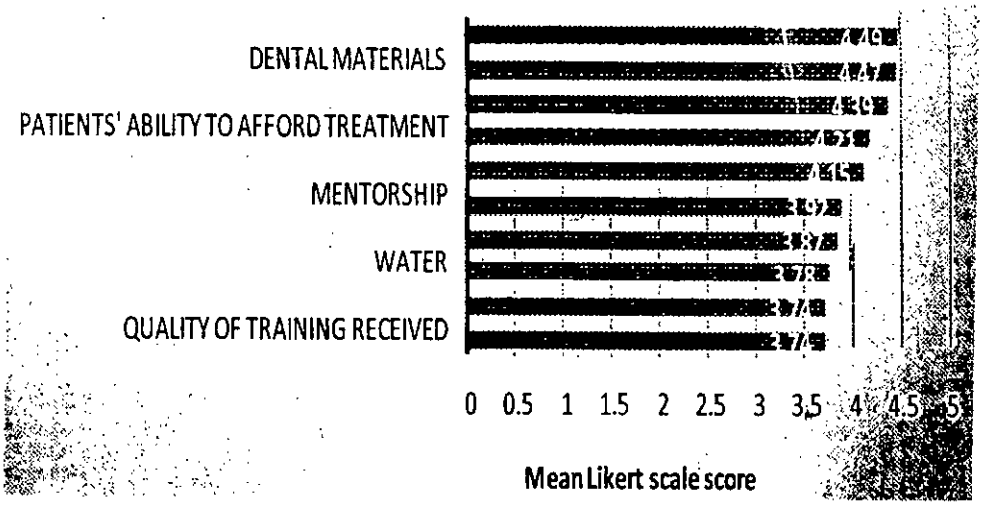

Fig. 3: Mean Likert scale scores for respondents' ratings of factors adversely affecting their clinical training.

DISCUSSION

Students' perception of their education is a subject that has received very little attention by those providing dental school education. Indeed, many studies carried out in dental education have focused on the perspective of faculty practitioners, alumni and professional organizations, while very few studies have focused on dental students and their perspectives on dental education (Henzi *et al.*, 2006). 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. However, the importance of obtaining the views of dental students, on their perceptions of the quality of undergraduate training received cannot be overemphasized. This is because, dental student perspectives on the content, structure and quality of their educational experience are an essential component of a broad based assessment of the curriculum and an important source of data for policy decisions (Henzi *et al.*, 2006).

In this study, the respondents recorded their lowest level of satisfaction with the level of academic and clinical training they had received in conservative and prosthetic dentistry, both of which constitute the two major aspects of restorative dentistry. This finding is 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 (Shetty *et al.*, 2012). The low level of satisfaction with the training received in restorative dentistry in this study, may be as a result of infrastructural difficulties and challenges faced by the students in this aspect of their training. This is further reinforced by the fact that, poor electricity supply, inadequate number of dental chairs and insufficient dental materials were the three

factors reported by the respondents that most adversely affected their clinical training. Furthermore, of all the specialties/courses assessed in this study, these two, i.e conservative and prosthetic dentistry, (particularly conservative dentistry) are the most dependent on a constant electricity supply and adequate number of dental chairs and materials for efficient undergraduate training. Indeed, both laboratory and clinical training in restorative dentistry are heavily dependent on adequate infrastructural support. However, in a closely related study, carried out among Indian dental students, the low confidence recorded with restorative dentistry was not associated with infrastructural challenges as students' reported that the learning environment was conducive and that they had adequate materials to work with (Shetty *et al.,* 2012).

The differences observed between the ratings of the students and house-officers, may be a reflection of the fact that inadequate exposure of dental students to a particular specialty area, may affect their perceptions in rating the quality of training received in that area. Thus, the house officers, as a result of their increased exposure from the internship training, rated the quality of undergraduate academic training they had received in specialties such as periodontology, oral medicine, community dentistry and orthodontics; much higher than the students. This is most likely because they were now better able to appreciate what they had been taught as students and had also been able to apply some of these clinically as house-officers. Other studies have also reported differences in the perceptions of dental students and recent graduates, on their training, based on their level of training and exposure (Jain *et al.,* 2010; Shetty *et al.,* 2012). However, the limited differences observed between the ratings of clinical training by the students and house-officers in this study, show that differences in level of exposure did not significantly affect their perception of the quality of clinical training received, except in the specialties of Orthodontics and Oral medicine.

In a previous study carried out by Sofola and Jeboda (Sofola and Jeboda, 2006) to assess the perceived sources of stress in Nigerian dental students, they reported that the most important stressors were the lack of provision of a well - supported system of dental education i.e. the availability of materials for clinical training and study materials. The findings from our study further reinforce this fact, several years later. The three factors identified in this study, as most adversely affecting the quality of clinical training received, were poor electricity supply, availability of dental chairs and dental materials. Unfortunately, in this environment interrupted power supply is still highly prevalent, thus necessitating the need for alternative power sources which are often very capital intensive and expensive to maintain. This is further compounded by the poor government funding of dental education, in spite of the huge costs involved. All these have contributed to inadequate infrastructural requirements to support undergraduate dental education.

It is pertinent to note that overall, in terms of the general factors that were adversely affecting undergraduate clinical training, the response showed that quality of training received from faculty, was generally perceived as the least important factor affecting students' training. However, mentorship ranked as the fifth most important factor (Fig. 3)

and this re-enforces the need for improved mentorship of students by faculty members. Many successful academic institutions encourage and support mentoring relationships and have found ways to institutionalize the process (Schrubbe, 2004) It is encouraging to note that recently, the Medical Education Unit (MEDU) of the College of Medicine of the University of Lagos organized a series of educational training workshops, which included lectures on mentoring relationships especially between Faculty members and students. This further highlights the importance of mentoring in undergraduate dental education.

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. 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 our study was restricted to the perspectives of students and recent dental graduates, we did not consider seeking the opinion of other stakeholders. Another limitation is number of individuals sampled. We restricted our survey to final year students and recent dental graduates from our institution, for this pilot study. A larger nationwide study is being planned and this would include all the dental schools in the country. Paucity of previous studies in this area, carried out in this environment was also a limitation, as it made it difficult to compare our findings with local studies.

CONCLUSION

Dental students and recent graduates of the University of Lagos Dental School are not satisfied with the quality of undergraduate training currently received in some dental specialties at the dental school. This dissatisfaction may be associated with infrastructural limitations such as poor electricity supply and inadequate dental chairs and materials for training. In addition, faculty members have an important role to play in improving the quality training received by the students by providing mentorship. Finally, this study has highlighted the challenges faced by the students and hopes to bring about necessary changes

RECOMMENDATIONS

There is an urgent need for the government to address the infrastructural deficiencies observed, as dental education is very capital intensive, indeed more so than medical education. Furthermore, considering the limited resources currently available for undergraduate training, the university authorities should ensure that the number of admitted students does not exceed the prescribed quota for the dental school, by the Medical and Dental Council. This would help to prevent the limited resources available, both human and material, from being overstretched. There is also a need for further studies carried out among all the stakeholders, to identify other factors which may affect the quality of training received by undergraduate dental students with an aim to

addressing these problems. It is hoped that the findings from this study, would provide a feedback for faculty members of the Dental School.

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