Mentoring Perceptions and Experiences among Nigerian Undergraduate Dental Students

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ABSTRACT

Introduction:
Mentoring among undergraduate dental students in Nigeria has never been evaluated, despite being well reported, to improve academic performance and the learning process globally. This study assessed the perceptions and experiences of Nigerian undergraduate dental students about mentoring.

Materials and Methods:
A sample of 382 students was recruited across all thirteen Nigerian dental faculties. A self-administered online questionnaire prepared on Google forms was sent to the students for completion. The completed forms were analysed using SPSS version 20. Descriptive and analytical statistics were applied and set the statistical significance level at P<0.05.

Results:
The students showed a very good knowledge of mentoring (99.0%) and an adequate understanding of the role of a mentor (67.3%).Many students had experienced mentoring prior to their dental training, mainly from religious institutions(60.0%).The majority (96.1%) of the students would have preferred to be mentored at the start of their training, however, only 21.2% had assigned mentors. More than half (57.6%) of the students would have preferred to choose their mentor, and the majority (43.2%) were indifferent about the gender preference of a mentor. About two-thirds of the students perceived career development as the most important reason for mentoring. The benefits of mentoring were ranked very highly, especially among the female students. Gender was the only predictor for successful mentoring (P< 0.05).

Conclusions:
Dental students reported low faculty mentoring. Career development was perceived as the most important factor in mentoring. Students recommended that mentoring should be incorporated into the dental curriculum right from the commencement of their training.

INTRODUCTION

In recent years, increased emphasis has been placed on mentoring as an important process of improving academic performance and the learning process.[1-2]Historically, the term 'mentor' originated from Greek mythology in which Odysseus entrusted the care of his child to a friend called Mentor.[3]Also, traditionally, mentoring can simply be described as a trusted relationship between an older, more knowledgeable, and experienced person (mentor) and a younger, less experienced protégé [mentee] to help and develop the protégé.[4-7]With regards to the dental profession, mentoring could be referred to as a formal or informal relationship or pairing

of an experienced dentist (the mentor) with a less experienced dentist or dentist-in-training (the mentee), to help the latter attain their professional goals and to progress throughout their career by sharing knowledge, information, and perspective.[8]

Extant literature has shown that mentoring plays an important and vital role in helping students to achieve excellence academically, as it provides guidance and enhances the mentee's learning.[9-12] In a meta-analysis of 116 pieces of literature from 1985-2006, Eby et al.[13] found that academic mentoring was highly related to good performance, improved attitude towards school work, and reduced withdrawal tendencies. Similarly, in a study comparing two groups of mentored and non-mentored students from two Scottish universities, Fox et al,[10] reported that mentored students had a better and more impressive academic performance, especially among first-year students. Volt and Ladwa[14] also affirmed the need for mentoring as a tool to ensure excellent performance among dentists-in-training. This was supported by Brooks[15] who, however, proposed that for more effective results, mentors should have the necessary skills and training required for successful mentoring, as the required skill is different from professional or clinical skills. Anderson and Shannon[16] also opined that mentoring becomes more effective when the specific roles and modes of operation of mentors and mentees are well stated.

Mentoring is not restricted to academics only, but is applicable in other fields, especially in the workplace, politics, sport, music, business, religious life, and other walks of life, and should be differentiated from supervision.[3,13,17] While supervision occurs in a formal setting and involves assessment of work by a senior faculty member, mentoring could occur in a formal or informal setting that may likely influence the mentee or protégé personally and/or professionally.[2,18] Though different, both are not mutually exclusive because a mentor could serve as a supervisor and vice versa.[19] Mentoring experiences and perceptions of undergraduate dental students have sparingly been documented despite seven decades of dental training in Nigeria. This study, therefore, aimed to assess dental students' perceptions and experiences of mentoring in Nigerian dental faculties.

MATERIALS AND METHODS

Ethical approval for the study was obtained from the Health Research Ethics Committee (HREC) of the Institute of Public Health, Obafemi Awolowo University Ile-Ife, Nigeria (HREC No. IPHOAU/12/1589). The study was a cross-sectional survey conducted across all 13 dental schools in Nigeria. These dental schools were grouped into four generations, and the generational age was pegged at 15 years from the date of establishment of the dental school. Dental students were recruited from 100 level (year 1) to 600 level (year 6) through the tutorial class list generated by either the students' class representatives or the faculty's executive council members for each university. Informed consent and assent were obtained from the students after duly explaining the research objectives, risks, and benefits. The voluntary nature of participation was also highlighted to all the students. Confidentiality was ensured and the students did not receive any cash compensation. The sample size was determined using Yamane's formula[20] for sample size determination. A minimum sample size of 376 was determined, and a total number of 382 students were eventually recruited for the study.

A pretested questionnaire was designed and sent to the students in all the dental faculties via email using Google Forms or WhatsApp platforms as tools for data collection (*appendix I*). The questionnaire was divided into four sections; the first was on socio-demographic information of the students, the second section assessed the students' general knowledge of mentoring,

the third section assessed students' preferences for mentoring, and the fourth section was a Likert's scale (1-strongly disagree, 2-disagree, 3-indifferent, 4-agree and 5-strongly agree) that assessed students perceived roles of mentor/mentee, benefits of mentoring, sources of enhancing and hindrance factors to mentoring. Data were analysed using descriptive and analytical statistics with SPSS software (Version 20; IBM). The statistical significance was set at $P< 0.05$.

RESULTS

Table 1 shows the socio-demographics of the respondents. There were more male students, accounting for 56.5% of the total responses. Most of the students (88.5%) were less than or equal to 25 years of age, with an overall mean age of 21.9±3.2. Pre-clinical and clinical dental students were 54.7% and 45.3% respectively. Most of the students belonged to the first and fourth generations of Nigerian dental faculties at 38.5% and 29.6% respectively. (Table 1)

Table 1: Distribution of dental students according to socio-demographic characteristics

Variable		
Gender	Frequency	Percentage
Male	216	56.5
Female	166	43.5
Age group		
≤25	338	88.5
>25	44	11.5
Educational level		
Pre-clinical (100-300) level	209	54.7
Clinical(400-600) level	173	45.3
Generation of dental faculty		
1st Gen.	147	38.5
2nd Gen.	53	13.9
3rd Gen	69	18.1
4th Gen.	113	29.6
Total	382	100.0

Table 2 shows dental students' knowledge and perceptions of mentoring. Most of the students (99.0%) had a good understanding of the term 'mentoring'. The role of a mentor was also clearly understood by 67.3% of the students. Religious institutions and students' homes accounted for 60.5% and 26.4% respectively for places they had been exposed to mentoring. Only 9.7% of the students were mentored at previous workplaces. At the time of the study, only 21.2% of the students had a mentor officially assigned to them by their faculty. A significant number (96.1%) of the students would like to be mentored in the dental faculty during their undergraduate training. Similarly, 88.7% of these students would also like mentoring to be included in the dental curriculum. Most of the students believed that mentoring should begin during the pre-clinical years, with 73% suggesting 100 level as the most preferred time of commencement. However, only one student believed that mentoring should start at 600 level. The preference of students concerning appointment of a mentor was also assessed. While a majority (57.6%) preferred to choose their mentor, about one-fifth (19.6%) desired to have their mentor appointed for them by the faculty and 3.4% were indifferent about either choosing for themselves or by the faculty. About one-fifth (20.4%) of the male students preferred to have a female mentor while 6.6% preferred a male mentor. Similarly, almost an equal number of female students would prefer to have either a female or male mentor, with 15.7% and 14.1% respectively. Generally, about one-fifth (20.7%) of the students would prefer to have mentors of the same gender, while about one-third (36.1%) of them preferred mentors of cross-gender. Furthermore, 43.2% of the dental students were, however, indifferent about gender preference in their mentors. (Table2)

Table 2: Dental students' knowledge and perceptions of mentoring

Variable	Frequency	Percentage
Knowledge of the term 'mentoring'		
Yes	378	99.0
No	4	1.0
Knowledge of the role of a mentor		
Yes	257	67.3
No	125	32.7
Mentoring experience before university education		
Yes	257	67.3
No	125	32.7
Exposure to mentoring aside dental faculty		
Religious institution	231	60.5
Work	37	9.7
At home	101	26.4
Willingness to be mentored in dental faculty		
Yes	367	96.1
No	15	3.9
Need for inclusion of mentoring in dental curriculum		
Yes	339	88.7
No	43	11.3
Level at which mentoring should begin in dental faculty		
100	279	73.0
200	85	22.3
300	9	2.4
400	6	1.6
500	2	0.5
600	1	0.3
Official appointment of mentor by the faculty		
Yes	81	21.2
No	301	78.8
Preference for appointment of a mentor		
A mentor should be appointed for me	75	19.6
I will prefer to choose the mentor myself	220	57.6
Others	13	3.4
Gender preference for mentor		
Male mentee-male mentor	25	6.6
Male mentee-female mentor	78	20.4
Female mentee-male mentor	60	15.7
Female mentee-female mentor	54	14.1
Indifferent	165	43.2

Table 3 shows the perceived benefits of mentoring by students according to age group and gender. Generally, students scored benefits accrued to mentoring very highly on a Likert scale. While making career choices was ranked significantly higher in females ($p<0.05$), the impact on personal life was, however, higher in the older age group (>25 years), and the difference was found to be statistically significant ($P<0.05$). (Table 3)

Table 3: Benefits of mentoring by students according to gender and age group

Variables	Male Mean ±SD	Female Mean ±SD	p-value	≤ 25 years Mean ±SD	>25 years Mean ±SD	p-value
Improvement in my academic performance	4.54 ±0.62	4.63 ±0.56	0.165	4.56 ±0.60	4.70 ±0.51	0.133
Improvement in clinical performance	4.65 ±0.48	4.66 ±0.48	0.864	4.64 ±0.48	4.73 ±0.45	0.265
Make better career choice considering specialisation	4.48 ±0.65	4.61 ±0.55	0.035*	4.53 ±0.62	4.64 ±0.53	0.264
Impact on personal life and development	4.25 ±0.74	4.22 ±0.76	0.726	4.21 ±0.75	4.48 ±0.70	0.024*

p>0.05;*p<0.05

Table 4 shows dental students' perception of the mentee/mentors' responsibilities according to age group and gender. Generally, the responsibilities of the mentee towards mentoring practices were highly ranked, except for the provision of advice and direction which was ranked very low, according to age group and gender. Concerning perception on actively listening, asking questions, and respecting mentor's time and resources during mentoring, female students ranked these responsibilities significantly higher than their male counterparts (P<0.05). Similarly, the older students ranked higher the perception to ask the mentor for advice, opinion, feedback, and direction than the younger group (P< 0.05). A significant gender difference was also reported in the perception of the mentor's responsibilities to willingly share personal or professional experiences, provide open and candid feedback, and offer encouragement by genuine reinforcement with the female gender rating it higher(P<0.05). With respect to age group, the younger age group ranked higher the students' perception of the method of mentoring, either physically or online, as well as the mentor's ability to stay accessible and committed, than their older counterparts (P< 0.05). (Table 4)

Table 4: Dental students' perceptions of mentee/mentor responsibilities according to gender and age group.

Mentee	Male Mean±SD	Female Mean±SD	p-value	≤25 years Mean±SD	>25 years Mean±SD	p-value
Meet mentor at the agreed time and the venue	4.34±0.68	4.43±0.65	0.187	4.36±0.68	4.55±0.59	0.085
Proactive about contacting mentor and rescheduling	4.33±0.58	4.36±0.63	0.709	4.33±0.61	4.50±0.59	0.078
Actively listening and asking questions	4.49±0.54	4.61±0.53	0.026*	4.53±0.53	4.64±0.53	0.201
Respect the mentor's time and resources	4.53±0.55	4.66±0.49	0.017*	4.57±0.53	4.73±0.50	0.065
Commit to self-development	4.58±0.52	4.64±0.52	0.266	4.60±0.52	4.66±0.53	0.462
Advice, opinion, feedback and direction from mentor	2.59±1.53	2.58±1.59	0.959	2.67±1.56	1.93±1.35	0.003*
Mentor						
Meet with me in person or on phone for mentoring	3.05±1.41	3.17±1.54	0.437	3.17±1.45	2.61±1.53	0.019*
Willing to share personal or professional experience	4.31±0.83	4.50±0.64	0.013*	4.38±0.77	4.48±0.63	0.418
Stay accessible and committed to me	3.17±1.42	3.26±1.46	0.554	3.30±1.39	2.48±1.53	0.000*
Provide open and candid feedback	4.40±0.62	4.53±0.52	0.035*	4.45±0.56	4.52±0.76	0.438
Offer encouragement by genuine reinforcement	4.44±0.57	4.55±0.53	0.038*	4.47±0.56	4.59±0.54	0.187
Keep our conversation confidential	4.50±0.65	4.53±0.68	0.710	4.54±0.67	4.59±0.58	0.621

p>0.05;*p<0.05

Possible enhancement and inhibiting factors (hindrances) to mentoring as perceived by students according to age group and gender are shown in Table 5.

Table 5: Enhancement and hindrances to mentoring as perceived by dental students according to gender and age group

Enhancement	Male Mean ±SD	Female Mean ±SD	p-value	≤ 25 years Mean ±SD	>25years Mean ±SD	p-value
Enabling and supportive environment	4.51±0.57	4.60±0.54	0.152	4.54±0.55	4.61±0.62	0.420
Responsive mentees who reaches out for help	4.42±0.60	4.55±0.59	0.026*	4.48±0.59	4.43±0.70	0.601
Well knowledgeable and experienced mentor	4.55±0.57	4.63±0.53	0.132	4.58±0.55	4.59±0.58	0.928
Ability of the mentor to motivate the mentee	4.48±0.62	4.62±0.52	0.021*	4.53±0.58	4.61±0.58	0.389
Mentor with emotional intelligence	4.50±0.65	4.53±0.57	0.584	4.50±0.61	4.57±0.62	0.508
Incorporation of formal mentoring in curriculum	2.98±1.40	3.16±3.18	0.211	3.06±1.38	3.02±1.47	0.870
Formally encouraging senior to junior students' mentorship	3.03±1.39	3.38±1.29	0.031*	3.22±1.33	2.93±1.52	0.192
Informally encouraging senior to junior students mentorship	3.86±0.93	3.78±0.95	0.421	3.83±0.94	3.84±0.91	0.918
Freedom and flexibility of mentees to choose mentor	4.26±0.69	4.23±0.75	0.637	4.25±0.70	4.27±0.82	0.813
Training of mentors to enhance effective mentorship	4.32±0.63	4.46±0.57	0.026*	4.39±0.59	4.34±0.71	0.611
Availability of mentorship guideline from mentor and mentee	4.31±0.66	4.38±0.63	0.300	4.33±0.65	4.41±0.66	0.455
Hindrances						
Limited time available with mentor due to workload	4.19±0.78	4.19±0.80	0.925	4.19±0.79	4.23±0.80	0.748
Faculty appointing mentor and not by student's choice	3.63±1.01	3.70±1.05	0.514	3.61±1.04	4.02±0.85	0.012*
Unavailability of mentor due to busy schedule	4.15±0.78	4.28±0.74	0.114	4.19±0.78	4.36±0.53	0.146
Attitudinal challenge from my mentor	4.00±0.78	4.13±0.80	0.136	4.04±0.81	4.16±0.61	0.367
Lack of responsiveness from my mentor	4.00±0.82	4.18±0.84	0.035*	4.07±0.84	4.09±0.80	0.917
Lack of motivation and zeal from mentor and mentees	3.06±1.42	3.22±1.48	0.295	3.17±1.44	2.80±1.46	0.105
Low achievement of goals	3.74±0,94	3.98±0.95	0.012*	3.85±0.95	3.80±0.95	0.725
Lack of structured mentoring programs	4.03±0.92	4.16±0.84	0.141	4.08±0.90	4.11±0.81	0.829
Inaccessibility to needed facility	3.96±0.90	4.17±0.83	0.016*	4.07±0.87	3.95±0.89	0.431

p>0.05; *p<0.05

Generally, the female students ranked both the enhancing and inhibiting factors higher than their male counterparts. Female students believed that the responsiveness of the mentee, and the ability of the mentor to motivate, as well as their mentorship training, will enhance mentoring significantly, compared to their male counterparts (P< 0.05). However, no significant differences in terms of enhancement to mentoring were reported among the age groups (P>0.05). Female students ranked lack of responsiveness of mentors and low achievement of goals significantly as hindrances to mentoring (P< 0.05), as opposed to their male counterparts, while the older dental students believed that the appointment of mentors by the faculty was more of a hindrance, than the younger students (P< 0.05).

Table 6 shows the multiple regression analysis of factors affecting successful mentoring according to socio-demographic characteristics. Results showed that gender was the only predictor of successful mentoring amidst other socio-demographic factors (P< 0.05).

Table 6: Multiple regression analysis of factors affecting successful mentoring according to socio-demographics.

Variables	Standardised Coefficient B	t	Sig	F	P	95% CI for B	
Constant		30.17	0.000	3.409	0.009	Lower bound	Upper bound
Age group	0.014	0.191	0.849			-0.126	0.153
Gender	0.151	3.359	0.001*			0.062	0.239
Educational level	-0.070	-1.462	0.145			-0.164	0.024
Generation of dental faculty	-0.007	-0.390	0.697			-0.043	0.029

F=3.409, P=0.009, R^2 =0.025, Adjusted R^2 = 0.03

Figure 1 shows the perceived importance of mentoring to the students. Most of the respondents (64.4%) believed that mentoring would help them in their career development, others believed it would help in research work (28.8%), on personal and social issues (5.2%), on religious issues (1.3%),and ethical issues (0.3%). (Figure 1)

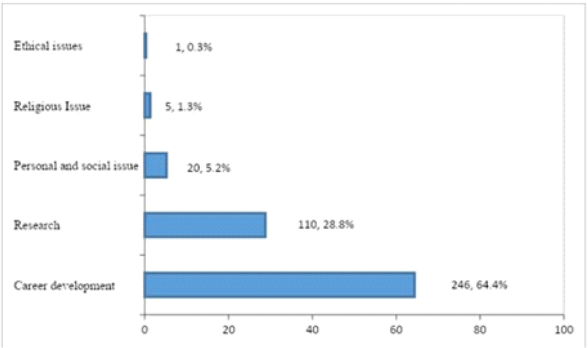

Figure 1: Perceived important issues of mentoring according to dental students

DISCUSSION

To the best of our knowledge, this study is the first and the only nationwide survey to document Nigerian undergraduate dental students' perceptions and experiences of mentoring. In this study, the vast majority of students demonstrated a very good understanding of the concept of 'mentoring' and had good knowledge of the role of a mentor. This may be because most of the students have had previous mentoring experiences in other social organisations and structures such as religious institutions, homes, and workplaces, which is consistent with the findings of Penner[3] and Eby et al[13] that mentoring is not restricted to academic institutions. In many of our local universities, formalisation and institutionalisation of mentoring programmes are still at the pedestrian level as only about one-fifth of the dental students had mentors assigned to them by their training institutions. The low level of mentoring in the Nigerian dental schools may largely be attributed to the

volume of work, limited time, and the busy schedule of both mentors and mentees. This view was supported by Hauer et al [21]who showed that the frequent shift from classroom work to the clinics could be a major hindrance to effective mentoring. This is also in consonance with previous reports[22-24] which observed that formal mentoring programmes are lacking in many universities.

There is a need, therefore, to include mentoring into students' activities as part of the university culture. According to some other studies,[2,25,26] the formalisation of mentoring may not necessarily eliminate the interpersonal, institutional, and socio-cultural barriers that hinder mentoring practices in resource-limited settings. It is also interesting to note that students in this study would like mentoring practices to commence at a very early stage of their training (100 level), with the privilege of nominating their mentors rather than being assigned by the faculty. According to Hauer et al,[21] this will allow for good rapport between the mentee and mentor as the choice made would be based on the mentee's standards and desired attributes in the mentor. Many other studies [27-29] have also reported that mentoring relationships are more effective when mentees are given the option of selecting their mentors. Interestingly, a greater proportion of the students showed no gender preference for mentoring. This is consistent with the findings by Leck et al [30]that most of the respondents in their study were indifferent concerning preference for same-gender or cross-gender mentors.

Across the globe, the importance of mentoring practices cannot be overemphasised. In our study, the perceived benefits of mentoring were ranked very highly on a five-point Likert scale by undergraduate dental students. This is supported by Fox et al [10]who found that in two Scottish universities, mentored students had a more impressive academic performance, especially among the first year students, when compared with the non-mentored students. Apart from improving the general academic performance of students, mentoring in dental education facilitates mentee's professional development, success in the teaching and learning process, as well as in their research work.[22,31] In a meta-analysis involving 116 publications from 1985-2006, Eby et al.,[13] found that academic mentoring was directly related to good performance, improved attitude towards school work, and reduced withdrawal tendencies. These authors reported a positive relationship between mentoring and academic performance, however, the duration, quality, and degree of mentoring received could not be ascertained.

Consistently in this report, the sexes and ages were generally in agreement with most of the mentorship benefits, enhancements and hindrances to mentorship. However, female and older students perceived more mentoring benefits, stakeholders' responsibilities, effective enhancing factors as well as hindrances than their male and younger counterparts respectively. No obvious reason could be advanced to support these observations, but a number of factors, like the attitude of mentees, access, and willingness of mentors to initiate mentoring programs may be responsible for the findings. In a related study, Scandura and Williams [32]showed that a protégé may benefit more from the same-gender relationship than a cross-gender relationship as regards role modelling. Also, largely, the participants in this study believed that mentoring would affect not only improve their academic performance but their clinical skill attainment. While the older students acknowledged that mentoring will impact on their personal life and development, the idea of being controlled by mentors was frowned at. Therefore, the need for advice, feedback and direction from mentors was ranked low. This is probably because this group of students are more independent and experienced in facing life issues.

There is no gainsaying the fact that, for effective mentoring, both mentor and mentee should be conversant with their roles. Anderson and Shannon[16]proposed that mentoring will become more effective

when specific roles and modes of operation of mentors and mentees are recognised and well-defined. Most of the students in this survey perceived that mentors should be trained to enhance effective mentoring. This is supported by Brooks[15] who suggested that mentors should have the necessary skills and training required for successful mentoring.

In this survey, gender was the only socio-demographic factor capable of predicting the effectiveness of mentoring with the female students showing more interest than their male counterparts. In contrast, male students were more inclined to be in charge of their academic activities and fend for themselves as opposed to females who would rather seek assistance.

CONCLUSION:

Nigerian dental students showed a low level of faculty mentoring despite their desire to be mentored. Career development was perceived as the most important benefit of mentoring by the students. Students, therefore, recommended that mentoring should be incorporated into the dental curriculum right from the beginning of their undergraduate dental training. Further studies need to be carried out to examine the perception of mentors.

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