

Oral Health-Related Practices among Undergraduate Dental Students in Nigerian Universities

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ABSTRACT

Objective: Description of oral health-related practices among dental students in Nigerian Universities.

Methods: The study was a descriptive cross-sectional survey involving the use of a multi-stage sampling technique to select 812 undergraduate dental students from 6 schools. Version 16 of SPSS statistical package was used for the analysis. Ethical approval was obtained from UI/UCH Ethics Committee.

Results: The mean age of the respondents was 22.0 ± 3.0 years. About 15% of the students were in year-1, while about 17% of the students were in each of years 2 to 6. The mean practice score was 8.7 ± 1.9 of 16 (54%). About 45% of the participants brush their teeth twice daily while about 54% do so only once daily. Fifty percent reported that their duration of brushing is more than two minutes. About 16% reported regular use of dental floss. About 90% used tooth paste with fluoride when they brush their teeth. Only 16.5% of the students visited their dentist regularly every 6 to 12 months. About 43% of them have never visited a dentist. Sixty two percent of them consumed sugary snacks at least once a day. Almost all of the respondents brushed their teeth with toothbrush (99.6%) and used tooth paste containing fluoride (96.4%). The oral health practices of the students were generally improved with age, study level and knowledge of oral health of respondents.

Conclusion: The oral health practice among the students was fair. As part of their curriculum, dental students should start learning about preventive aspects of oral health as early as their first year in the University.

Keywords: Oral health practices, dental students, Nigeria

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INTRODUCTION

Oral diseases are related to human behaviour.¹ The prevalence of dental caries and periodontal diseases has decreased with improvements in oral hygiene and decrease in the consumption of sugar products¹. This reduction, however, has not been reported in many developing countries including Nigeria, where these diseases are increasing in prevalence.²

Oral diseases and related treatment experience have been found to measurably affect the oral health related quality of life (OHRQL) of children and their families³. Numerous measures have been developed in recent years to assess the effect of oral health

problems on individual's physical, mental and social well-being⁴. The health of the teeth and mouth is linked to overall health and well-being in a number of ways.⁵ The ability to chew and swallow food is essential for obtaining the nutrients needed for good health. Apart from the impact on nutritional status, poor dental health can also adversely affect speech and self-esteem. Dental diseases impose both financial and social burdens as treatment is costly and both children and adults may miss school or work because of dental pain and time spent on treatment. Thus, untreated tooth decay can cause pain and

infection that can lead to problems with nutrition, growth, school attendance and speech problems.⁶ Dental professionals play an essential role in monitoring oral health, treating and preventing oral diseases. Undergraduate dental students are providers of dental services in future and will be responsible for the public's oral health education and oral health status.⁷ One of the main objectives of dental education is to train students who can motivate patients to adopt good oral hygiene.⁸ They are more likely to be able to do this if they themselves are motivated⁸. Also, dental students should be able to apply this knowledge and attitudes to their own dental care.⁹ Since dental students are the ones who will apply their knowledge to patients and improve the treatment process during their own practices, a study of their oral health-related practices during their training could be of great value.¹⁰ There is scarcity of studies on oral health practices of undergraduate dental students in Nigeria. Hence this study described the oral health-related practices among dental students in Nigerian Universities. The objective of the study was to describe the oral health-related practices and Identify of factors influencing oral health practices among dental students in Nigerian Universities.

MATERIALS AND METHODS

The study was a descriptive cross-sectional survey involving 812 undergraduate dental students from 6 accredited dental schools in Nigeria: University of Benin, University of Ibadan, University of Lagos, Obafemi Awolowo University, University of Port Harcourt and Bayero University, Kano. A sample size

of 700 was calculated using the formula for cross-sectional study.¹¹ However, this was adjusted to 875 to compensate for possible non-response rate of 20%.

A multi-stage sampling technique was used to select 875 (n) students from 6 accredited dental schools in Nigeria.

Stage-1: Six out of eight Universities where dentistry is studied in Nigeria were selected through purposive sampling technique. The schools were: UI, UNIBEN, UNILAG, OAU, UNIPORT and BUK. Population of students in all the six schools (N) was 1171.

Stage-2: Stratified sampling technique was used to divide the selected population into six strata by the schools. Using **equal sampling ratio (proportional allocation)**, the sample size in each school (n_s) was calculated from: $n_s = n/N (N_s)$, where: N_s = Number of Students in each school and n/N = Sampling ratio = 875/1171.

Stage-3: In each of the schools, stratification was made into 6 strata by the study level and the required number of students from each study level (n_L) was again calculated using **equal sampling ratio** from $n_L = n_s/N_s (N_L)$, where: N_L = Number of Students in each level and n_s/N_s = Sampling fraction in each school (which also equals the general sampling ratio).

The summary of the total (N) and the required (n) number of students in each of the study levels in all the six schools is presented in table-1:

Stage-4: The final selection was done using convenience sampling technique. The questionnaires were administered to any student seen in each class until the required number of subjects from that class is reached.

Table-1: Summary of the total (N) and the selected (n) number of students in each of the study levels in all the six schools of study.

STUDY LEVEL	UI		UNIBEN		UNILAG		OAU		UNIPORT		BUK	
	N	n	N	n	N	n	N	n	N	n	N	n
100	28	21	23	17	50	37	26	19	20	15	67	50
200	32	24	20	15	52	39	32	24	27	20	50	37
300	33	25	20	15	77	58	32	24	33	25	26	19
400	28	21	20	15	66	49	13	10	23	17	25	19
500	35	26	40	30	49	37	33	25	16	12	7	5
600	33	25	32	24	55	41	38	28	10	7	0	0
Total	189	142	155	116	349	261	174	130	129	96	175	130

Information on socio-demographic characteristics and oral health-related practices of the students were collected using a well-structured, self-administered questionnaire. Sixteen questions were used to assess oral health practices graded as bad and good for scores 0-7 and 8-16 respectively. The data were entered, cleaned and analyzed using SPSS statistical package, version 20. Summary statistics and frequency tables were done for all variables. Ethical approval was obtained from University of Ibadan/University College Hospital Ethics Committee. The data for the study relied completely on the information received from the respondents and so there may be overestimations or underestimations but, the explicit nature of the questions may have reduced its impact on the results.

RESULTS

Out of 875 questionnaires administered, 841(96%) students responded and 812 (93%) duly completed questionnaires were analyzed.

Socio-demographic Characteristics of Respondents

Table-2 shows the socio-demographic characteristics of respondents. The ratio of male to female respondents was about 3:2. The mean age of the respondents was 22.0±3.0 years. Many of the students (57.9%) were between 20 and 24 years, 28.1% were from UNILAG and 17.7% were 300 level students. More than half of the respondents' fathers (56.6%) and about half of their mothers (50.6%) were senior civil servants. More than half of both fathers (77.4%) and mothers (71.4%) of respondents had tertiary education.

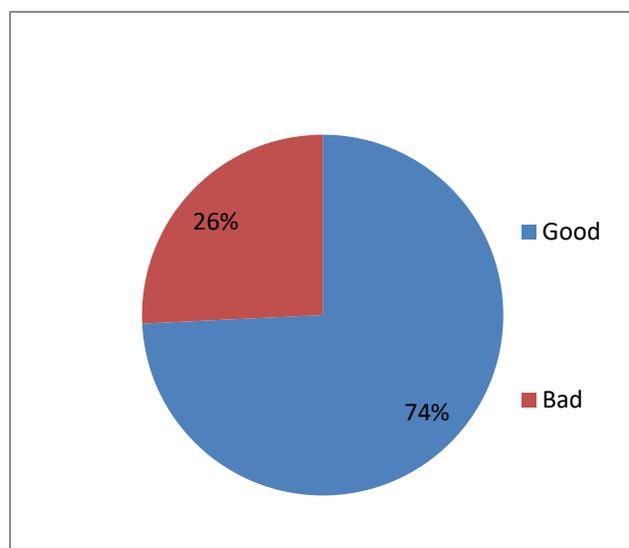
Table-2: Socio-demographic characteristics of respondents

Variable	Frequency (n = 812)	Percent (%)
Gender		
Male	471	58.0
Female	341	42.0
Age group in years		
<20	175	21.6
20-24	470	57.9
>24	167	20.5
School		
UI	162	20.0
UNIBEN	138	17.0
UNILAG	228	28.0
OAU	150	18.5
UNIPORT	73	9.0
BUK	61	7.5
Study level		
100	120	14.8
200	140	17.2
300	143	17.7
400	136	16.7
500	135	16.6
600	138	17.0
Fathers occupation		
Senior civil servant	453	56.6
Junior civil servant	49	6.1
Small scale self employed	115	14.4
Large scale self employed	156	19.5
Unemployed	27	3.4
Mother occupation		
Senior civil servant	408	50.6
Junior civil servant	76	9.5
Small scale self employed	174	21.6

Large scale self employed	109	13.5
House wife	26	3.2
Unemployed	13	1.5
Highest educational level of father		
No formal education	15	2.0
Primary school	45	5.6
Secondary school	120	15.0
Tertiary school	625	77.4
Highest educational level of mother		
No formal education	22	2.8
Primary school	55	6.8
Secondary school	153	19.0
Tertiary school	575	71.4

Oral health practices

Of the 16 questions used to assess the students' oral health practices, the mean practice score was 8.7 ± 1.9 of 16 (54%). The figure below shows the oral health practices of respondents. More of the respondents (74%) had good oral health practices while 26% had bad oral health practices.



Pie chart showing the oral health practices of respondents

Oral health practices (Contd)

Table-3 shows the distribution of respondents' oral health practices. About 45% of the participants brush their teeth twice daily while about 54% do so only

once daily. Fifty percent reported that their duration of brushing is more than two minutes. About 16% reported regular use of dental floss. About 90% used tooth paste with fluoride when they brush their teeth. Only 16.5% of the students visited their dentist regularly every 6 to 12 months. About 43% of them have never visited a dentist. Sixty two percent of them consumed sugary snacks at least once a day. Almost all of the respondents brushed their teeth with toothbrush (99.6%) and used tooth paste containing fluoride (96.4%).

Factors influencing oral health practices

Tables 4 and 5 show the association between respondents' characteristics and oral health practices. Oral health practices improved significantly with age of respondents ($p=0.04$). Sixty seven percent of those that were less than 20 years of age had good oral health practices while 79% of those above 24 years had good oral health practices. Oral health practices was significantly associated with study level of respondents ($p<0.0001$). About 60% of the respondents in 200 level had good oral health practices whereas over 90% of those in 600 level had good oral health practices.

Oral health practices was significantly associated with knowledge of oral health of respondents ($p<0.0001$). Sixty five percent of those that had fair knowledge of oral health had good oral health practices, while 80% of those that had good knowledge of oral health had good oral health practices.

Table-3: Distribution of respondents' oral health practices

Variable	Good practice n (%)	Bad practice n (%)
How many times do you brush your teeth in a day	366 (45.2)	444(54.8)
When do you brush your teeth	181 (22.4)	627(77.6)
For how long do you brush your teeth	405 (49.9)	406(50.1)
Do you use dental floss regularly	132 (16.3)	679(83.7)
Do you use toothpaste with fluoride when you brush your teeth	723 (89.4)	86(10.6)
How often do you visit your dentist	134 (16.5)	677(83.5)
How often do you consume sugary snacks	307 (37.9)	502(62.1)
Do you use mouth rinse on a regular basis	636 (78.5)	174(21.5)
Do you brush each tooth carefully while cleaning your teeth	626 (77.7)	180(22.3)
Tooth brush	807 (99.6)	3(0.4)
Toothpaste containing fluoride	782 (96.4)	29(3.6)
Any toothpaste (fluoride or no fluoride)	608 (75.2)	200(24.8)
Dental floss	211 (26.0)	599(7.4)
Chewing stick	709 (87.5)	101(12.5)
Toothpick	480 (59.3)	330(40.7)
Mouth wash	553 (68.5)	254(31.5)

Table-4: Association between respondents' characteristics and oral health practices

Variable	Bad practices n (%)	Good practices n (%)	p-value
Gender			
Male	117 (24.9)	352 (75.1)	0.452
Female	92 (27.3)	245 (72.7)	
Age group			
<20	57 (32.6)	118 (67.4)	0.04
20-24	117 (24.9)	353 (75.1)	
>24	35 (21.0)	132 (79.0)	
School			
UI	47 (29.0)	115 (71.0)	0.094
UNIBEN	33 (23.9)	105 (76.1)	
UNILAG	58 (25.4)	170 (74.6)	
OAU	27 (18.0)	123 (82.0)	
UNIPORT	24 (32.9)	49 (67.1)	
BUK	20 (32.8)	41 (67.2)	
Study Level			
100	37 (30.8)	83 (69.2)	<0.0001
200	55 (39.3)	85 (60.7)	
300	32 (22.4)	111 (77.6)	
400	42 (30.9)	94 (69.1)	
500	31 (23.0)	104 (77.0)	
600	12 (8.7)	126 (91.3)	

Table-5: Association between respondents' characteristics and oral health practices

Variable	Bad practices n (%)	Good practices n (%)	p-value
Father's Occupation			
Senior Civil Servant	113 (25.0)	339 (75.0)	0.846
Junior Civil Servant	11 (22.4)	38 (77.6)	
Small Scale Self Employed	27 (23.5)	88 (76.5)	
Large Scale Self Employed	44 (28.2)	112 (71.8)	
Unemployed	8 (29.6)	19 (70.4)	
Mother's Occupation			
Senior civil servant	111 (27.2)	297 (72.8)	0.127
Junior civil servant	19 (25.0)	57 (75.0)	
Small scale self employed	32 (18.4)	142 (81.6)	
Large scale self employed	36 (33.0)	73 (67.0)	
House wife	6 (23.1)	20 (76.9)	
Unemployed	3 (23.1)	10 (76.9)	
Highest educational level of father			
No formal education	3 (20.0)	12 (80.0)	0.489
Primary school	8 (17.8)	37 (82.2)	
Secondary school	29 (24.2)	91 (75.8)	
Tertiary school	169 (27.0)	456 (73.0)	
Highest Educational Level Of Mother			
No formal education	3 (13.6)	19 (86.4)	0.096
Primary school	17 (30.9)	38 (69.1)	
Secondary school	30 (19.6)	123 (80.4)	
Tertiary school	158 (27.5)	417 (72.5)	
Knowledge of oral health			
Good	95 (20.1)	377 (79.9)	<0.0001
Fair	103 (35.0)	191 (65.0)	
Poor	11 (23.9)	35 (76.1)	
Attitudes toward oral health			
Positive	187 (25.3)	552 (74.7)	0.368
Negative	22 (30.1)	51 (69.9)	

DISCUSSION**Socio-demographic characteristics**

In this study, the males were more than the females. The reverse was the case in one study among undergraduate dental students in Pakistan¹², where the male to female ratio was found to be 2:3. The mean age of respondents was similar to that found in a study of dental students at the University of Zagreb, Croatia, in which the mean age was reported to be 22.3±2.6 years¹³. It was however less than that found (25±7.1 years) in a study of dental students in Ajman University¹⁴.

Oral Health Practices

The oral health practice of the undergraduate dental students in Nigeria was generally fair on the average. Similar finding was also recorded in some other surveys of dental students in other countries¹⁴⁻¹⁶. This

finding was also in agreement with that of a similar survey among senior dental students in Nigeria. Oral health practice was reported to be poor in several other Nigerian studies among nursing students in University of Nigeria teaching hospital¹⁷, among medical house officers in Benin City¹⁸ and among 12 to 15-year-old school children in Benin City¹⁹. The latter concluded that although the prevalence of dental caries in the study area was very low, poor dental practices and dietary habits were likely to increase this prevalence. It stressed the need for continuous monitoring and establishment of preventive programs.

Factors Influencing Oral Health Practices

The oral health practices of the students were generally improved with age, study level and knowledge of oral health of respondents. This

implies that constant exercises and growing knowledge in the field of the profession reflects a growing capability to perform good oral health practices. The improvement in oral health practices with age is probably due to increasing level of education with age. Study level and knowledge of oral health were also found to be positively associated with oral health practices ($p < 0.05$) in similar survey of dental students in Nigeria and beyond^{13, 20-22}. Age of respondents was also found to be associated with oral health practices ($P < 0.001$) in a study of the determinants of preventive oral health practices among senior dental students in Nigeria²⁰. Gender and socio-economic factors were not significantly associated with oral health practices in this study. However, gender and socio-economic factors were found to be significantly associated with oral health practices in a few other studies^{18, 23}.

CONCLUSION

The oral health practices among the Nigerian undergraduate dental students was fair. The oral health practices of the students were generally improved with age, study level and knowledge of oral health of respondents

RECOMMENDATIONS

1. As part of their curriculum, dental students should start learning about preventive aspects of oral health as early as their first year in the university.
2. The students should be taught dental plaque control, tooth brushing techniques and flossing as early as first year in the University.

REFERENCES

1. Yildiz S. and Dogan B. Self-reported dental health attitudes and behaviour of dental students in Turkey. *Eur J Dent* 2011; 5:253-259.
2. Umesi DC., Savage KO. Dental caries status and treatment needs in 12-year-old Nigerians. *Nig J Comm Med Prim Hlth Care* 2002; 14:5-14.
3. Kalsbee H, Truin GJ, Poorterman JHG. Trend in oral status and oral hygiene habits in Dutch adults between 1983 and 1995. *Community Dent Oral Epidemiol* 2000; 28:112-118.
4. Taani DQ. Relationship of socio-economic background to oral hygiene, gingival status, and dental caries in children. *Quintessence Int* 2002; 33:1-4.
5. Taani DQ, Alhaija ES. Self-assessed bleeding as an indicator of gingival health among 12-14-year-old children. *J Oral Rehabil* 2003; 30:78-81.

6. Bjarnason S. High caries levels: problems still to be tackled. *Acta Odontol Scand* 1998; 56:176-178.
7. Dagli RJ, Tadakamadla S, Dhanni C. Self-reported dental health attitude and behavior of dental students in India. *J Oral Sci* 1998; 50(3):267-272.
8. Cortes FJ, Nevot C, Ramon JM, Cuenca E. The evolution of dental health in dental students at the University of Barcelona. *J Dent Educ* 2002; 66:1203-1208.
9. Yorty JS, Brown B. Caries risk assessment/treatment programs in U.S. dental schools. *J Dent Educ* 1999; 63:745-747.
10. Nadeem M, Ahmed SS, Khaliq R, et al 2011. Evaluation of dental health education and dental status among dental students at Liaquat College of Medicine and Dentistry. *Int J DC* 2011; 3(3):11-12.
11. Lemeshow S, Hosmer DW, Klar J, Livawa SK. *Adequacy of Sample Size in Health Statistics*. John Wiley and Sons 1990.
12. Umerubab S, Fariha N, Mohammad Y. DMFT Index among Dental Undergraduates of Lahore Medical and Dental College in different professional years of dentistry. *Pak Oral Dent J* 2013; 33(1):156-159.
13. Badovinac A, Bozic D, Vucinac I, Vesligaj J, Vrazic D, Plancak D. Oral health behavior and attitudes of dental students in years 1 to 6 at the University of Zagreb, Croatia. *J Dent Educ* 2013; 77(9):1171-1178.
14. Al-Mashhadani SS, Hashim R. The oral health status of dental students in Ajman University. *Oral Health Res* 2006; 1:20
15. Rahman B, Kawas SA. The relationship between dental health behavior, oral hygiene and gingival status of dental students in the United Arab Emirates. *Eur J Dent* 2013; 7(1):22-27.
16. Dogan B., 2013. Differences in oral health behaviour and attitudes between dental and nursing students. *MUSBED* 2013; 3(1):34-40.
17. Udoye C, Aguwa E. Oral health related knowledge and behavior among nursing students in a Nigerian Hospital. *Internet J Dent Sci* 2008; 7:2.
18. Azodo CC, Unamatokpa B. Gender difference in oral health perception and practices among medical house officers. *Russian Open Med J* 2012; 1:0208
19. Okeigbemen SA. The prevalence of dental caries among 12 to 15-year-old school children in Benin

- City, Nigeria: report of a local survey and campaign. *Oral Health Prev Dent* 2004; 2:27-31.
20. Folayan MO, Khami MR, Folaranmi N, Popoola BO, Sofola OO, Ligali TO, Esan AO, Orenuga OO. Determinants of preventive oral health behavior among senior dental students in Nigeria. *BMC Oral Health* 2013; 13:28. doi: 10.1186/1472-6831-13-28.
 21. Neeraja R, Kayalvizhi G, Sangeetha P. Oral health attitudes and behavior among a group of dental students in Bangalore, India. *Eur J Dent* 2011; 5(2):163-167.
 22. Sato M, Camino J, Oyakawa HR, Rodriguez L, Tong L, et al. Effects of dental education on Peruvian dental students' oral health related attitudes and behavior. *J Dent Educ* 2013; 77(9):1179-1184.
 23. Shekar BRC, Reddy CVK, Manjunath BC, Suma S. Dental health awareness, attitude, oral health-related habits, and behaviours in relation to socio-economic factors among the municipal employees of Mysore City. *Ann Trop Med Public health* 2011; 4:99-106.