

# Oral Health Behaviour and its Determinants among Dental, Medical and Nursing Students in a Tertiary Institution in Lagos State, Nigeria

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## Abstract

**Background:** Oral health entails practicing and maintenance of good oral hygiene. It is an integral part of general health. **Aim:** To determine the oral health behavior among dental, medical and nursing students of the Lagos State University College of Medicine, Ikeja Lagos, Nigeria. **Materials and Methods:** The survey was conducted among dental, medical and nursing students of Lagos State University College of Medicine, Ikeja, using a self-administered structured questionnaire, which assessed their oral health attitude and practices. The obtained data was analyzed using the Statistical Package for the Social Sciences version 21 software. **Results:** One hundred and thirty participated in the study. More than twenty-eight percent (28.5%) brush twice a day, 27.7% use dental floss regularly, and only 47.7% use water to rinse after meals. About 56.9% of the medical students have never been to a dentist. A few, 7.7% have undertaken the every 6 months dental visits and 77.7% agreed that oral hygiene was necessary for good general health. The study also showed that female students (both dental and medical) showed better oral health practices than male students. **Conclusion:** Although dental students exhibited better practice towards oral health, but there was a lack of adequate attitude among them. Further emphasis on oral health is necessary in undergraduate training to improve the oral health attitude and practice among dental, medical and nursing students as they will act as role models for oral health education among individuals and community at large.

**Keywords:** Oral health, oral hygiene, students.

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## INTRODUCTION

Dental hygiene is the science and practice of the recognition, treatment, and prevention of oral diseases. Good oral hygiene is the foundation for a healthy mouth and prevents 80% of all dental problems [1]. Oral diseases are still the most prevalent problems that affect the overall health of human beings [2]. Periodontitis and dental caries are two major oral problems affecting 60% and 36% of the people respectively worldwide.

Oral health plays an important role in overall health and is an indispensable part of general health [3]. It is reported that there is a close relationship between oral diseases and systemic diseases like diabetes, crohn's disease, stroke, cardiovascular disease, metabolic syndrome, pregnancy outcomes and obesity [4, 5]. Oral problems, on one hand, could result in a pro-inflammatory state, that may initiate or worsen a

systemic disease [6], while, systemic disorders might be responsible for the development of oral problems [7, 8].

However, oral health care is always neglected despite the importance of oral health in general health [9]. Given the importance of oral health in the whole body and the high prevalence of oral diseases, the joint effort of dentists and clinicians is essential to people's health, and it should be integrated as part of the comprehensive health promotion [10, 11].

Oral care practices such as brushing with fluoride toothpaste, dental flossing, regular dental check-ups including cleaning the teeth professionally at least twice a year, are recommended measures for maintaining good oral health [12].

Raising public awareness about dental check-up may assist in early diagnosis of cancer and other oral diseases [13]. The population needs to receive

information on oral diseases, risk factors and measures that can be adopted to prevent them. The change from an unhealthy attitude to a healthy attitude will occur when adequate information and motivation are provided; and adequate practices of the measures are adopted by the subject [14].

The medical professionals are more likely to encounter vulnerable populations than dental professionals, particularly Family Health and Community physicians. The behavior of oral health professionals reflects their understanding of oral preventive measures and practices, which have a great impact on the delivery of oral health to their patients [15, 16]. Therefore, it is very important for dental, medical and nursing students to have good oral health behaviour as they will be the major providers of health services and be responsible for public oral health promotion in the future. Gender and age are key factors that may influence oral health behaviour. These have been demonstrated in a study by Folayan *et al.*, [17].

### AIM OF THE STUDY

This study, therefore, aims to determine oral health behaviour among dental, medical and nursing students in a Tertiary Institution in Lagos State, Nigeria.

### METHODOLOGY

It was a cross-sectional study of oral health behaviour among medical, dental and nursing students of the Lagos State University, College of Medicine, LASUCOM, Ikeja, Lagos. Ethical clearance was obtained from the Research and Ethics Committee of Lagos State University Teaching Hospital, LASUTH, Ikeja, Lagos. The target population was the second-year students, during the academic year 2018/2019. Verbal informed consent was taken from the health professional students and responses from those who agreed to participate in the study were considered. A self-administered questionnaire was designed and distributed among 150 health professional students, out of which 130 were properly filled and therefore considered. The questionnaire consisted of three parts. The first part comprised the demographic data of students (age, gender and course of study). The second part consisted of questions related to oral hygiene practices amongst the healthcare professionals, which included: oral hygiene method used, frequency of tooth brushing, frequency of changing toothbrushes, types of tooth brushes used, tongue cleaning, use of water to rinse after meals, importance of dental visitations and relationship between oral hygiene and general health. The third part evaluated factors that determined their attitude towards oral health which included reasons for dental visit, the motivation for the last visit, reason for not visiting and also questions on dental treatment that was sought during the last visit.

### STATISTICAL ANALYSIS

The data was entered using Statistical Package for Social Sciences (SPSS) version 21 for windows. Chi-square test was used for the analysis of data. Also ANOVA was used to compare the attitude and practice between students in the three groups (medical, dental, and nursing). T-test was also used to compare between males and females with respect to level of attitude and practice. P value was set at  $P < 0.05$ .

### RESULTS

A total of 130 students completed and returned the questionnaire. Of these, 24 (18.5%), 82(63.1%), and 24 (18.5%) were dental, medical, and nursing students, respectively. There were 79 females and 51 males, with male to female ratio of 1:1.46. The age range of respondents was 17–30 years, and the mean age was  $20.7 \pm 3.2$  years (Table-1).

The mean percentage scores for attitude and behavior was higher among the dental students than the mean scores for the medical and nursing students. The mean percentage scores for attitude and behavior was higher in female students than male students. The mean score for attitude was statistically significant in gender and age (Table-2).

About 115(88.5%) of the participants in this study used toothbrush and toothpaste to clean their teeth. Flossing was used only by 36(27.7), it was more frequent in dental students 10 (41.7%). Mouthwash 42(32.3%) was more frequently used compared to floss. There was a statistically significant difference in the oral hygiene methods between the groups ( $P = 0.010$ ).

About 93 (71.5%) of the students brushed their teeth once a day. The dental students 11(45.8) brushed their teeth twice or more in a day than the medical and nursing students. .

Almost all, 115(88.5.4%) of the students used the medium bristled tooth brushes for cleaning their teeth. There was a statistically significant difference between the groups ( $P = 0.025$ )

About 59(39.0%) of the students changed their tooth brushes every 3 months. Almost all of them cleaned their tongues, but only 62(47.7%) rinsed their mouth with water after meals (Table-3).

A total of 80.8% of the students, of which 95.8% of dental students believed that regular visit to dental surgeon is necessary, whereas only 58.3% of the medical students agreed on this fact; the difference was statistically significant ( $p=0.003$ ). A large number of students, 74 (56.9%) had never been to a dentist, and 17 (13.1%) only went to see a dentist when in pain.

A total of 84.6% of the students (83.3% dental, 84.1% medical and 87.5% nursing students) knew that the purpose of tooth brushing was to clean teeth, to prevent tooth decay and odor. The entire dental (100%),

(73.2%) of the medical and (70.8%) of nursing students considered oral health to be important in maintaining good general health. The difference between group was statistically significant  $p=0.014$  (Table-4).

**Table-1: Age, gender and course of study distribution of the participants**

Variable	N %
<b>Age</b>	
17-20	80 61.5
21-30	50 38.5
<b>Gender</b>	
Female	79 60.8
Male	51 39.2
<b>Course of study</b>	
Dental	24 18.5
Medical	82 63.1
Nursing	24 18.5
<b>Total</b>	<b>130 100</b>

**Table-2: Shows the mean percentage scores for attitude and practice in relation to gender and the students' course of study**

Variables	Mean $\pm$ SD	Mean percentage score %	P value
<b>Practice Score</b>			
<b>Gender</b>			
Female	8.37 $\pm$ 1.46	69.7	0.560
Male	7.69 $\pm$ 1.39	64.1	
<b>Age</b>			
17-20	7.95 $\pm$ 1.34	66.2	0.068
21-30	8.34 $\pm$ 1.64	69.5	
<b>Course of study</b>			
Dental	8.71 $\pm$ 1.37	72.6	0.616
Medical	8.01 $\pm$ 1.52	66.7	
Nursing	7.79 $\pm$ 1.21	64.9	
<b>Total</b>	<b>8.10 <math>\pm</math> 1.47</b>	<b>67.5</b>	
<b>Attitude Score</b>			
<b>Gender</b>			
Female	2.46 $\pm$ 1.48	41.0	0.013*
Male	2.45 $\pm$ 1.55	40.8	
<b>Age</b>			
17-20	2.05 $\pm$ 1.16	34.2	0.000*
21-30	3.10 $\pm$ 1.76	51.7	
<b>Course of study</b>			
Dental	2.87 $\pm$ 1.40	47.8	0.804
Medical	2.47 $\pm$ 1.54	41.2	
Nursing	1.96 $\pm$ 1.40	32.7	
<b>Total</b>	<b>2.45 <math>\pm</math> 1.51</b>	<b>40.8</b>	

**Table-3: Oral hygiene practices among the health professionals**

Variables	Course of Study			Total	P value
	Dental	Medical No %	Nurses		
<b>Tooth cleaning Tool</b>					
Toothbrush	22 (91.7)	70 (85.4)	23 (95.8)	115 (88.5)	0.319
Both	2 (8.3)	5 (6.1)	1 (4.2)	8 (6.1)	
Chewing sticks	0 (0.0)	7 (8.5)	0 (0.0)	7 (5.4)	
<b>Frequency of brushing</b>					
Once	13 (54.2)	62 (75.6)	18 (75.0)	93 (71.5)	0.113
Twice	11 (45.8)	20 (24.4)	6 (25.0)	37 (28.5)	
<b>Other cleaning aids</b>					
Floss	10 (41.7)	25 (30.5)	1 (4.2)	36 (27.7)	0.010*
Mouthwash	5 (20.8)	22 (26.8)	15 (62.5)	42 (32.3)	
Toothpick	2 ( 8.3)	11 (13.4)	1 (4.2)	14 (10.8)	
Others	7 (29.2)	24 (29.3)	7 (29.1)	38 (29.2)	
<b>Types of brushes used</b>					
Soft	2 (8.3)	11 (12.4)	9 (37.5)	22 (16.9)	0.025*
Medium	21 (87.5)	54 (65.9)	11 (45.8)	86 (66.2)	
Hard	1 (4.2)	15 (18.3)	4 (16.7)	20 (15.4)	
Nothing	0 (0.0)	2 (2.4)	0 (0.0)	2 (1.5)	
<b>Frequency of tooth brush Change</b>					
Months	2 (8.3)	16 (19.5)	1 (4.2)	19 (14.6)	0.306
3months	15 (62.5)	32 (39.0)	12 (50.0)	59 (39.0)	
When brush fray	3 (12.5)	16 (19.5)	5 (20.8)	24 (18.5)	
Occasionally	4 (16.7)	18 (22.0)	6 (25.0)	28 (21.5)	
<b>Tongue cleaning</b>					
Yes	23 (95.8)	81 (98.8)	24(100.0)	128 (98.5)	0.508
No	1 (4.2)	1 (1.2)	0 (0.0)	2 (1.5)	
<b>Water rinsing</b>					
Yes	12 (50.0)	37 (45.1)	13 (54.2)	62 (47.7)	0.715
No	12 (50.0)	45 (54.9)	11 (45.8)	68 (52.3)	

**Table-4: Attitude of subjects toward professional dental care**

Variables	Course of study				P value
	Dental	Medical	Nurses	Total	
<b>Regular dental visit important</b>					
Yes	23 (95.8)	68 (82.9)	14 (58.3)	105 (80.8)	0.003*
No	1 (4.2)	14 (17.1)	10 ( 41.7)	25 (19.2)	
<b>Ever visited a dentist</b>					
Yes	10 (41.7)	38 (46.3)	8 (33.3)	56 (43.1)	0.433
No	14 (58.3)	44 (53.7)	16 (66.7)	74 (56.9)	
<b>Frequency of dental visit</b>					
6-12months	3 (12.5)	7 (8.5)	0 (0.0)	10 (7.7)	0.225
When in pain	4 (16.7)	8 (9.8)	5 (20.8)	17 (13.1)	
Occasionally	3 (12.5)	23 (28.0)	3 (12.5)	29 (22.3)	
Never	14 (58.3)	44 (53.7)	16 (66.7)	74 (56.9)	
<b>Reason for brushing</b>					
For clean and bright teeth	0 (0.0)	8 (9.8)	1 (4.2)	9 (6.9)	0.308
To prevent decay	2 (8.3)	2 (2.4)	0 (0.0)	4 (3.1)	
To prevent odor	2 (8.3)	3 (3.7)	2 (8.3)	7 (5.4)	
All the Three	20 (83.3)	69 (84.1)	21 (87.5)	110 (84.6)	
<b>Oral hygiene necessary for general health</b>					
Yes	24(100.0)	60 (73.2)	17 (70.8)	101 (77.7)	0.014*
No	0 (0.0)	22 (26.8)	7 (29.2)	29 (22.3)	

## DISCUSSION

The present study revealed that 88.5% of the students used toothpaste and toothbrush and 5.4% used chewing sticks to clean their teeth. This was comparable to 78.7% of the students that used toothpaste and 16.3% that used toothbrush and miswak in a study by Al Subait [18]. However Bashiru *et al.*, [19] reported 100% and Kumar *et al.*, [20] reported that 96.6% students in their study used toothbrushes and paste for cleaning.

A total of 28.5% (45.8% dental, 24.8% medical and 25.0% nursing) students brushed twice a day in our study. A similar result was reported by Benjamin *et al.*, [21] in a study conducted at the University of Nairobi, which showed that 39.0%, of which (27.5% dental and 39% medical) students brushed twice daily. A study by Kumar *et al.*, [20] reported that 65.3% of which, (77.3% dental and 53.3% medical) students brushed twice daily. About approximately 60% of the students cleaned their teeth twice daily in Bashiru *et al.*, [19] study and the values were much lower than those reported in our study (28.5%).

Flossing of teeth is as much required as brushing, for complete cleanliness of teeth. In this study 27.7% of the students (41.7% dental, 30.5% medical and 4.2% nursing), students flossed regularly. This was comparable with the report of Al Subait *et al.*, [18] where 24.5% of the students (24.4% medical, 23.3% dental and 31.2% nursing) in the study flossed regularly. However, Kumar *et al.*, [20] reported that 13.3% of the students, (16.0% of the medicals and 10.6% of dental students) flossed regularly and 14.2% of dental and 3.0% of medical students flossed in Yao *et al.*, study [2]. In Azodo *et al.*, study [22] only 2.9% of the medical students flossed regularly. This showed that the dental floss was not very popular among the students due to lack of awareness of its use and the benefits of flossing on oral health.

In this study, toothbrush renewal of every 3 months was 39.0% (39.0% of medical, 62.5% of dental and 50.0% for nursing students) which was similar to the 28.8% from Bashiru *et al.*, [19] and 41.1% (44.2% medical, 36.7% dental and 45.8% nursing students reported by Al Subait *et al.*, [18]. All were lower than 47.7% and 62.9% from Azodo *et al.*, [22] and Gupta *et al.*, studies [24]. Fraying was the most common reason cited for the renewal of toothbrush in all the groups. This result was in accordance with the results of Gopikrishna *et al.*, [1]. This infers that these students are unaware of the fact that prolonged usage of toothbrushes not only decreases effectiveness in cleaning of plaque, but also causes trauma to gingival tissue. They should be educated about the importance of changing of toothbrushes at regular intervals.

Medium-textured toothbrushes are considered gum and oral tissue friendly [25]. The use of medium-textured toothbrushes by the students was close to 66% in this study, similar to previous studies [19, 24, 25], but contrary to the 30.9% reported by Azodo *et al* in their study [22].

More than 60% of the population in Al Subait *et al.*, [18] study cleaned their mouth after eating a meal; however, only 47.7% rinsed their mouth in our study. Almost all the participants, 98.5% in this study cleaned their tongues, similar to 87.2% in Gupta *et al.*, [24] study on medical and nursing students in Raipur India. Daya *et al.*, [26] recorded 100% of tongue cleaning from their study on dental students, while about, 56.4% of the students cleaned their tongue in Al Subait *et al.*, study [18].

A total of 95.8% of our dental, 82.9% of medical and 58.3% of nursing students felt the necessity of regular visits to a dental surgeon. This is similar to the report of Kumar *et al.*, [20] with 89.33% of dental and 81% of medical students. In Al Subait *et al.*, [18] study, more than 80% of the students believed that visiting dentists before having a dental problem is important.

In this study, (43.1%) reported dental attendance, while 33% and 25.1%. reported dental attendance among students in previous studies [19, 23] This conforms with the fact that regular dental attendance is uncommon in developing countries mainly because the populations prefer symptomatic dental attendance to preventive dental attendance [23]. However, this was contrary to 78% and 71.9% reported among students in other studies [1, 9].

Majority of the students in the present study agreed that regular dental visit was necessary but less than 7.7% of the students practiced the recommended six (6) monthly dental visits. Other studies reported that 4% [25] and 15.4% [1] of the students visited on the recommended 6 monthly visits. About 13% of the students in our study visited the dentists for relief of pain. About 38.7% and 50% were reported by some studies [1, 25]. This reflected the poor attitude of the students to oral health care.

On evaluating the attitude towards oral health, in this study, about 84.6 % of students were of the opinion that the purpose of brushing their teeth is to have clean teeth, to get rid of bad breath and to have healthy teeth. Similar to the opinion from 60.0% of the students in Al Subait *et al.*, study [18]. A total of 92.67% of the students (96.67% dental and 88.67% medical) believed that the purpose of tooth brushing was to prevent tooth decay and gum disease in a study by Kumar *et al.*, [20] The leading principal reason for teeth cleaning was fresh breath, 52.1% was reported by medical students in Azodo *et al.*, study [23].

In our study, most of the dental (100.0%), medical (73.2%) and 70.8% of nursing students considered oral health to be important in maintaining good general health, and this is compatible with the findings of previous studies [1, 18, 20, 27].

In the present study, the total mean percentage scores for behavior were more than 65% among the students. Although about 65% of the students showed positive behavior toward oral health care, 35% of the students showed negative oral health behavior. This negative behavior was particularly related to the frequency of tooth brushing, the use of dental floss and mouth rinsing with water after meals, and this is suggestive of lack of adequate oral care among the students. This was similar to Bashiru *et al.*, [19] report on behavior of students in Port Harcourt.

About 40% gave the correct response to attitude questions. The attitude of the students to oral care was inadequate. This indicates that about 60% of the students showed negative attitude toward oral health care. This negative behavior was particularly related to dental visit and the recommended 6 monthly visits. This was contrary to the report of Bashiru *et al.*, [19].

In this study, female students had better attitude and practice compared with male students. Similar to other studies on students [18-20]. The dental students had significantly better attitude and practice about oral hygiene practices compared with the other groups. In Kumar *et al.*, study [20], the medical had better practice of oral care than the dental and nursing students and in Al Subait *et al.*, [18] the nursing students had better attitude and practice than the dental and medical students.

## CONCLUSION

Dental, medical and nursing students must be taught oral health education during their training. They must be equipped with the knowledge and skill of oral health. Attitude, the practice and dental attendance are all important in maintaining optimal oral health. The knowledge gained by the students would be used for future practices, disseminating information and care to their patients and the community at large.

The students' background variables, such as gender, age, attitude and practice towards oral health show differences in preventive dental care. This should be addressed in future researches, to identify how and why such background variables are significant determinants of oral health behaviour among the medical, dental and nursing students despite their professional training.

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