

# Oral Health-Related Attitudes among Undergraduate Dental Students in Selected Nigerian Universities

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ABSTRACT

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

**Methods:** The study was a cross sectional survey involving the use of a multi-stage sampling technique to select 812 undergraduate dental students from 6 institutions. Information on socio-demographic characteristics of respondents and their oral health-related attitudes were collected using a well-structured, self-administered questionnaire. Chi-square test was used to investigate the association between socio-demographic characteristics and oral health-related attitudes.

**Results:** The mean age of the respondents was  $22.0 \pm 3.0$  years. About 15% of the students were in year-1. The mean attitude score was  $10 \pm 1.8$  of 13. Over 90% of the respondents correctly agreed to the statements: "Regular visit to the dentist are necessary" (96.3%), "Treatment of the teeth is as important as any other part of the body" (98.3%), "It is important to visit the dentist whether there is pain or not" (92.4%) and "the tooth brush is an oral hygiene aid" (96.3%). About 75%, 66% and 44.5% of the students respectively correctly disagreed with the statements: "Dental floss is not a useful oral hygiene aid", "It is not necessary to bother about the color of our teeth" and "Patient should decide the types of treatment they receive." There was a significant association between study level ( $p < 0.0001$ ) and sex (0.034) on one hand and attitudes toward oral health on the other hand.

**Conclusion:** The attitudes toward oral health among the Nigerian undergraduate dental students was good. The oral health-related attitude of the students was significantly influenced by sex and level of education of respondents. 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.

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## INTRODUCTION

Dental caries and periodontal disease are the two major oral health problems in Nigeria (Sheiham, 2005), while others include malocclusion, traumatized teeth, dental fluorosis and cancrum oris (noma). In this study, oral health-related knowledge and attitudes were based on dental caries and periodontal diseases, being the major oral health problems and in keeping with international standards, as recommended by World Health Organization (Petersen, 2009).

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The prevalence of dental caries and periodontal diseases has decreased with improvements in oral hygiene and decrease in the consumption of sugar products (Yildiz & Dogan, 2011). This reduction, however, has not been reported in many developing countries including Nigeria, where these diseases are increasing in prevalence (Umehi & Savage 2002; Kwan & Petersen, 2004).

Oral diseases and related treatment experience have been found to measurably affect the oral health related quality of life (OHRQL) of individuals, groups and communities (Kalsbee et al., 2000). The health of the teeth and mouth is linked to overall health and well-being in a number of ways (Taani & Alhaija, 2003). The ability to chew and swallow food is essential for obtaining the nutrients needed for good health (Taani & Alhaija, 2003). Apart from the impact on nutritional status, poor dental health can also adversely affect speech and self-esteem (Taani & Alhaija, 2003). 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.

Dental professionals play an essential role in monitoring oral health, treating and preventing oral diseases (Dagli et al., 2008). Undergraduate dental students are future providers of dental services and will be responsible for the public's oral health education and oral health status (Dagli et al., 2008). One of the main objectives of dental education is to train students who can motivate patients to adopt good oral hygiene (Cortes et al., 2002). They are more likely to be able to do this if they themselves are motivated (Cortes et al., 2002). Also, dental students should be able to apply this knowledge and attitudes to their own dental care (Yorty, 1999). The attitudes of people toward their own teeth, and attitudes of dentists who provide dental care, play an important role in determining the oral health condition of the population (Yorty, 1999). 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 attitudes during their training could be of great value (Nadeem et al., 2011). There exists paucity of studies on oral health-related attitudes among undergraduate dental students in Nigeria. Hence this study described oral health-related attitudes and also identified some factors that influence them among dental students in Nigerian Universities.

## MATERIALS AND METHODS

**Study design/ Setting:** The study was a cross sectional survey involving 812 undergraduate dental students from 6 accredited dental schools in Nigeria: University of Benin (UNIBEN), University of Ibadan (UI), University of Lagos (UNILAG), Obafemi Awolowo University (OAU), University of Port Harcourt (UNIPORT) and Bayero University, Kano (BUK).

**Sampling/ sample size:** A sample size of 700 was calculated using the formula for cross-sectional study (Lemeshow et al., 1990). 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 (ns) was calculated from:  $ns = n/N$  (Ns), where: Ns = 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 (nL) was again calculated using equal sampling ratio from  $nL = ns/Ns$  (NL), where: NL = Number of Students in each level and  $ns/Ns$  = 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:

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		UNIPOINT		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
<b>Total</b>	<b>189</b>	<b>142</b>	<b>155</b>	<b>116</b>	<b>349</b>	<b>261</b>	<b>174</b>	<b>130</b>	<b>129</b>	<b>96</b>	<b>175</b>	<b>130</b>

Key: UI=University of Ibadan, UNIBEN=University of Benin, UNILAG=University of Lagos, OAU=Obafemi Awolowo University, UNIPOINT=University of Part Harcourt, BUK=Bayero University Kano

**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.

**Data collection tool/ procedure:** Information on socio-demographic characteristics and oral health-related knowledge and attitudes of the students were collected using a well-structured, self-administered questionnaire. Thirteen questions were used to assess their attitudes towards oral health and their attitudes graded as positive, when participant scores 8-13 of 13; and negative, when participant scores 0-7. Twenty questions were used to assess their knowledge of oral health and their knowledge graded as poor, when participant scores 0-9 of 20; fair, when participant scores 10-14 of 20; and good, when participant scores 15-20 of 20.

**Data analysis:** The data were entered, cleaned and analyzed using IBM SPSS version 20.0. Summary statistics and frequency tables were done for all variables. Chi-square test was used to investigate the association between respondents' characteristics (sex, age, study location, study level, father's occupation, mother's occupation, highest educational level of father and highest educational level of mother and knowledge of oral health), and oral health-related attitudes.

**Ethical consideration:** Ethical approval was obtained from University of Ibadan/University College Hospital Ethics Committee.

## RESULTS

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

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.

Of the 13 questions used to assess the students' attitudes toward oral health, the mean attitude score was 10±1.8. Figure-1 shows the respondents' attitudes toward oral health. The majority of the respondents (91%) had positive attitudes toward oral health and only 9% had negative attitudes toward oral health.

Table-2: Socio-demographic characteristics of the respondents

Variable	Frequency (n = 812)	Percent (%)
<b>Gender</b>		
Male	471	58.0
Female	341	42.0
<b>Age (years)</b>		
<20	175	21.6
20-24	470	57.9
>24	167	20.5
<b>School</b>		
UI	162	20.0
UNIBEN	138	17.0
UNILAG	228	28.0
OAU	150	18.5
UNIPORT	73	9.0
BUK	61	7.5
<b>Study level</b>		
100	120	14.8
200	140	17.2
300	143	17.7
400	136	16.7
500	135	16.6
600	138	17.0
<b>Fathers occupation</b>		
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
<b>Mother occupation</b>		
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
<b>Highest educational level of father</b>		
No formal education	15	2.0
Primary school	45	5.6
Secondary school	120	15.0
Tertiary school	625	77.4
<b>Highest educational level of mother</b>		
No formal education	22	2.8
Primary school	55	6.8
Secondary school	153	19.0
Tertiary school	575	71.4

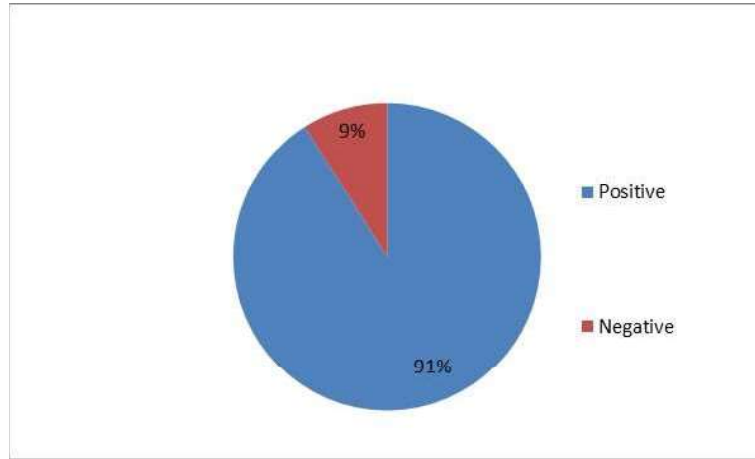


Figure-1: Respondents' attitude toward oral health

Table-3 shows the distribution of the respondents' attitudes toward oral health. Over 90% of the participants correctly agreed to the statements: "Regular visit to the dentist are necessary" (96.3%), "Treatment of the teeth is as important as any other part of the body" (98.3%), "It is important to visit the dentist whether there is pain or not" (92.4%) and "the tooth brush is an oral hygiene aid" (96.3%). About 90% of the

participants correctly agreed to the statements: "Smoking has harmful effect on oral health" (91.7%) and "The dentist should explain the procedure to the patients before treatment" (89.3%). About 75%, 66% and 44.5% of the students respectively correctly disagreed with the statements: "Dental floss is not a useful oral hygiene aid", "It is not necessary to bother about the color of our teeth" and "Patient should decide the types of treatment they receive."

Table-3: Distribution of respondents' attitude toward oral health

Variable	Positive attitude n (%)	Negative attitude n (%)
Regular visit to dentist is necessary	782 (96.3)	30 (3.7)
Patient should decide types of treatment they received	361(44.5)	451(55.5)
Treatment of the teeth is as important as any other part of the body	797 (98.3)	14(1.7)
It is important to visit the dentist whether there is pain or not	751(92.4)	61(7.6)
It is not necessary to border about the colour of our teeth	534 (65.8)	278(34.2)
The tooth brush is an oral hygiene aid	782 (96.3)	28(3.7)
Dental floss is not a useful oral hygiene aid	606 (74.6)	206(25.4)
Smoking has harmful effect on oral health	745 (91.7)	67(8.3)
Tooth ache is the main reason for visiting a dental clinic	437 (53.8)	375(46.2)
Fear of pain is the main reason for avoiding or visiting the dentist	446 (54.9)	366(45.1)
The dentist should explain the procedure to the patients before treatment	725 (89.3)	87(10.7)
I think I can clean my teeth well without using toothpaste	669 (82.4)	143(17.6)
I think it is sometime good to use a dye to see how clean the teeth are	419 (51.6)	393(48.4)

Table-4 shows that there was a significant association between study level ( $p < 0.0001$ ) and sex (0.034) on one hand and attitudes toward oral

health on the other hand. About 78% of those in 100 level had positive attitudes toward oral health, whereas about 99% of those in 600 level had

positive attitudes toward oral health. About 89% of the male respondents had positive attitudes toward oral health, whereas about 94% of the

female respondents had positive attitudes toward oral health.

Table-4: Association between the respondents' socio-demographic characteristics and attitudes toward oral health

Variable	Attitudes toward oral health		P-Value
	Positive n (%)	Negative n (%)	
<b>Study level</b>			
100	94 (78.3)	26 (21.7)	<0.0001
200	129 (92.1)	11 (7.9)	
300	121 (84.6)	22 (15.4)	
400	131 (96.3)	5 (3.7)	
500	128 (94.8)	7 (5.2)	
600	136 (98.6)	2 (1.4)	
<b>Gender</b>			
Male	418 (89.1)	51 (10.9)	0.034
Female	315 (93.5)	22 (6.5)	

## DISCUSSION

In this study, the males were more than the females. The reverse was the case in one study among undergraduate dental students in Pakistan (Umerubab, 2013), 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 years (Badovinac et al., 2013). It was however less than that found (25±7.1 years) in a study of dental students in Ajman University (Al-Mashhadani & Hashim, 2006).

Majority of the respondents had positive attitudes toward oral health and only a few had negative attitudes. These findings were in keeping with findings from most other studies (Neeraja et al., 2011; Baseer et al., 2012; Sato et al., 2013; Dogan, 2013). This is probably due to the fact that the subjects were dental and health-related students. This study further demonstrated a significant association between sex and study level on one hand and attitudes toward oral health on the other hand. Female dental students showed significantly better attitudes than their male colleagues. This finding was in consistency with those of previous surveys in different countries of the world (Kawamura et al., 2000; Al- Washadni et al., 2004; Petersen et al., 2004; Al- Omari et al., 2005; Rahman & Kawas, 2013). This finding may be explained on the basis that females usually are

more aesthetically conscious. They would be more interested in visiting the dentist and would tend to be better informed about their oral health even before entering a course related to dentistry (Kawamura et al., 2000). Study level of the participants was the major factor influencing attitudes toward oral health in this study. There was an improvement in the attitudes toward oral health with increase in the study level. Some other studies of dental students in other countries reported the same relationship (Neeraja et al., 2011). This finding is probably due to the fact that dental students are generally motivated to maintain good oral health. This implies that dental education has a positive influence on oral health-related attitudes.

## CONCLUSION

The attitudes toward oral health among the Nigerian undergraduate dental students was good. The oral health-related attitude of the students was significantly influenced by sex and level of education of respondents.

We wish to recommend the following:

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.

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### Conflict of interest

The authors declare that they have no conflicts of interest.

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