

# Accessibility of young adolescents to information on dental caries in Ibadan, Nigeria

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## Abstract

**Background and Objectives:** The prevalence of dental caries, which is on the rise among adolescents in Nigeria has been associated with poor oral health awareness. It remains unknown if information about dental caries is available to young adolescents. This study therefore, determined the accessibility of young adolescents to information on dental caries in Ibadan, Nigeria.

## Methods

A cross sectional study was conducted among 911 pupils aged 10 to 12 years in 12 randomly selected public primary schools in three Local Government Areas in the metropolis of Ibadan. Data were obtained with structured interviewer administered questionnaires. Data obtained was analysed using SPSS version 23. Statistical significance was set at  $p < 5\%$ .

## Results

Only 90 (9.9%) pupils had accessed information on dental caries prior to the interview. Information on dental caries were accessed through dentists, 66 (73.3%) and school teachers 24 (26.7%). Pupils who were males (OR = 1.7, CI = 1.0 – 2.7,  $p = 0.04$ ), whose parents had tertiary education (OR = 3.4, CI = 1.7 – 6.8,  $p < 0.001$ ),

had consulted a dentist (OR = 6.0, CI = 3.5 – 10.6,  $p < 0.001$ ), rated their oral health as poor (OR = 2.0, CI = 1.1 – 3.5,  $P = 0.024$ ) or perceived a need for dental treatment (OR = 1.5, CI = 0.8 – 2.7,  $p = 0.196$ ) were more likely to have accessed information on dental caries previously.

## Conclusion

Very few pupils had prior access to information on dental caries and dentists were the major sources. Male gender, higher parental education, previous dental consultations and poor self-rating of oral health were significant predictors of prior access to information on dental caries.

## Keywords

Adolescents dental caries, Oral health, school, sources, health education.

## Introduction

The prevalence of untreated dental caries is high among young adolescents in Nigeria<sup>1,2</sup>. The prevalence of dental caries among adolescents has been reported to range from 10.6% to 35.5% over the last two decades in Nigeria<sup>1-7</sup>. Untreated dental caries significantly impacts the daily activities of adolescents<sup>8-10</sup> and is thus worrisome because dental caries is preventable<sup>11</sup>. Prevention of dental caries has been addressed by different strategies<sup>12-14</sup>.

The strategies adopted include good personal oral hygiene, use of fluoride toothpaste, dietary control, and fluoride therapy among others<sup>13</sup>. In developing countries including Nigeria, prevention strategies regarding dental caries are grossly deficient<sup>2</sup>.

In addition, it is unknown if adolescents have access to information on dental caries and are invariably equipped with skills in the prevention of the disease. Furthermore, recent evidence shows that poor oral health knowledge, attitude and practices exists among adolescents<sup>15</sup>. The promotion of awareness on dental caries is therefore crucial to prevent its occurrence as treatment may be hampered by the high cost of dental services<sup>16</sup> and economic imbalance in many developing countries. Importantly, understanding how accessibility to information on dental caries affects adolescents' perception of oral health will assist in restructuring existing programmes. The information will provide evidence needed in the description of strengths and weaknesses of the existing structure of oral health education for adolescents. Furthermore, it will serve as baseline information needed in establishing formal school oral health programme for adolescents in the nation and other countries with similar demography. This will influence policy needed to lay down a foundation for development and or restructuring of oral health promotion programmes for adolescents. This study, therefore, determined the accessibility of young adolescents to information on dental caries in Ibadan, Nigeria.

### **Materials and methods**

This was a descriptive cross-sectional study conducted among 10 to 12-year-olds in randomly selected public primary schools in Ibadan, the capital of Oyo State in Nigeria. The sample size for the study was 901. This was estimated based on the formula for determining sample size in cross sectional studies<sup>17</sup> incorporating 9.3% as

prevalence of previous exposure to oral health education among students from a previous study<sup>15</sup>, non-response rate of 10% and a degree of error of 2%.

The schools included in the study were randomly selected from the list of schools in the metropolis of Ibadan using systematic sampling technique. Within each selected school, 31 children aged 10 to 12 years were randomly selected from the registers of primaries four, five and six classes. This resulted in a total of 93 students per school. Only pupils who returned a signed consent form, who gave assent to participate in the study and were available at the time of the study were included. Pupils who were ill or had special needs were excluded from the study. Data for this study was obtained with a structured interviewer administered questionnaire and it assessed sociodemographic characteristics of the pupils (age, gender, educational qualification and occupation of parents), exposure to information on dental caries, perceived need for dental treatment and self-rating of oral health. Perceived need for dental treatment was reported as "present" or "absent". Self-rating of oral health was assessed as "good" or "poor". Occupation of parents was classified into "skilled, semiskilled, unskilled and dependents" by adapting a modification of Office of Population Census and Surveys (OPCS)<sup>18</sup>. The questionnaire was translated into Yoruba – the local language to improve the ease of administering the questionnaire and to further enhance responsiveness of the study participants to the questions asked. The questionnaire was validated by linguistic experts and pre-tested among 60 pupils in a school that was not used for the study.

Data obtained was analysed with SPSS. For ease of analysis, educational qualification of parents was recoded into "tertiary" and "others" (comprising of no formal education, primary and secondary).

Categorical variables were summarized using proportions and numerical variables summarized using means and standard deviation. Test of association between categorical variables was carried out with Chi square statistics at the bivariate level and logistic regression was used to determine the associations at multivariate level. Level of significance was set at  $p < 5\%$ .

## Results

A total of 930 pupils were approached for the study and 911 were finally recruited resulting in a response rate of 98%.

### *Sociodemographic and participants' characteristics*

There were 491 (53.9%) males and the mean age of participants was 11.0 (SD = 0.9) years. The majority 827 (90.8%) have parents who had unskilled jobs (Table 1).

**Table 1: Sociodemographic characteristics of the study participants**

Sociodemographic variable	Frequency	%
<b>Gender</b>		
Male	491	53.9
Female	420	46.1
<b>Age (years)</b>		
10	352	38.6
11	216	23.7
12	343	37.7
<b>Parent's occupational class</b>		
Semi-skilled	80	8.8
Unskilled	827	90.8
Dependent	4	0.4
<b>Parent's educational level</b>		
None	33	3.6
Primary	362	39.7
Secondary	461	50.6
Tertiary	55	6.0
<b>Previous dental consultation</b>		
Yes	76	8.3
No	835	91.7
<b>Self-rating of oral health</b>		
Good	789	86.6
Poor	122	13.4

Only 76 (8.3%) pupils had consulted the dentist previously (Table 1). The majority 789 (86.6%) rated their oral health as good and 671 (73.7%) perceived a need for dental treatment.

#### **Exposure to information on dental caries**

Only 90 (9.9%) pupils had received information on dental caries prior to the interview. The information on dental caries was obtained from dentists 66 (73.3%) and school teachers 24 (26.7%).

#### **Socio-demographic characteristics and access to information on dental caries**

Bivariate analysis showed that male gender, previous dental consultation, having a perceived need for dental treatment and rating of oral health as good were significantly associated with previous exposure to information on dental caries (Table 2).

**Table 2: Bivariate analysis of factors associated with accessibility to information on dental caries**

Variable	Accessed information on dental caries		X <sup>2</sup>	p value
	Yes	No		
<b>Age (years)</b>				
10	38 (10.8)	314 (89.2)	0.642	0.725
11	19 (8.8)	197 (91.2)		
12	33 (9.6)	310 (90.4)		
<b>Sex</b>				
Male	61 (12.4)	430 (87.6)	7.744	0.005*
Female	29 (6.9)	391 (93.1)		
<b>Parent's occupational class</b>				
Semi-skilled	6 (7.5)	74 (92.5)	1.019	0.601
Unskilled	84 (10.2)	743 (89.8)		
Dependent	0 (0)	4 (100)		
<b>Parent's educational level</b>				
Tertiary	13 (23.6)	42 (76.4)	12.443	<0.001*
None and others	77 (9.0)	779 (91.0)		
<b>Previous dental consultation</b>				
Yes	26 (34.2)	50 (65.8)	55.14	<0.001*
No	64 (7.7)	771 (92.3)		

**Self-rating of oral health**

Good	71 (9.0)	718 (91.0)	5.131	0.024*
Poor	19 (15.6)	103 (84.4)		

**Perceived need for dental treatment**

Yes	75 (11.6)	596 (88.8)	4.821	0.028*
No	15 (6.3)	225 (93.8)		

\* - Statistically significant

Multivariate analysis showed that males were more likely to have received information on dental caries than females (OR = 1.7, 95% Confidence Interval (CI)= 1.0 – 2.7, p=0.04).

Those who had consulted a dentist (OR = 6.0, 95% CI= 3.5 – 10.6, p < 0.001) or rated their oral health as good were more likely to have been informed about dental caries (Table 3).

**Table 3: Factors predicting accessibility to information on dental caries**

Variable	OR	95%CI	p value
<b>Gender</b>			
Male	1.7	1.0 – 2.7	0.040*
Female			
<b>Parent’s educational level</b>			
Tertiary	3.4	1.7 – 6.8	0.001*
Others			
<b>Previous dental visits</b>			
Yes	6.0	3.5 – 10.6	< 0.001*
No			
<b>Self-rating of oral health</b>			
Poor	2.0	1.1 – 3.5	0.024*
Good			
<b>Perceived need for dental treatment</b>			
Yes	1.5	0.8 – 2.7	0.196
No			

\* - Statistically significant

## Discussion

This study evaluated the accessibility of information on dental caries to pupils in public primary schools in Ibadan. It also highlighted the factors associated with accessibility to information on dental caries. The findings of the study showed that less than 10% of the pupils had received information on dental caries. This proportion of pupils with prior access to information on dental caries is extremely low. In addition, it may contribute to the high unmet needs as a result of dental caries in the country<sup>1,3-7</sup>. Dentists were the major avenue for information on dental caries as noted in our findings. The role of dentists in providing oral health information has been mentioned<sup>19</sup>. Dentists are well equipped with provision of knowledge on dental caries and trained to routinely provide information on dental caries and other oral diseases in both clinical settings and at the community level<sup>20</sup>. School teachers came next as resource persons for making information on dental caries accessible to the pupils. Teachers are key to health education messages in schools and it is not surprising that they are one of the agents through which information is made available to the pupils. Busy school schedule and suboptimal knowledge of dental caries<sup>21-23</sup> may be obstacles towards teachers becoming the most important source of information on caries prevention, especially if oral health education is not in the school curriculum. Male pupils had higher odds of having access to information on dental caries than females. This is surprising as studies have shown that females have better oral health practices than males<sup>24</sup>. In addition, females have been reported as having lower odds of developing dental caries<sup>25,26</sup>. The contrasting finding with regards to dental caries observed in this study will need to be further investigated. The educational qualification of parents was also an important factor in access to information on dental caries.

Pupils whose parents had tertiary educational qualification were more likely to have accessed information on dental caries compared to others. Parents with higher educational qualifications are more likely to be accessible to oral health information on dental caries, thus exhibit better oral health practices as well as access dental services for both preventive and curative care<sup>27</sup>. In the process, they acquire more information, which is passed on to their children. This is corroborated by previous dental consultation being a significant factor in accessing information on dental caries observed in the present study. Dental consultation increased the odds of accessing information on dental caries by six folds. At the dental clinics, information on dental caries and other oral diseases are routinely made available to patients. In addition, dentists owe it as a clinical duty to educate their patients on the causes and prevention of dental caries and other oral diseases as the case may be. The importance of oral health education to patients in the clinical setting has been emphasized<sup>20</sup>.

Pupils who had access to information on dental caries rated their oral health better than those who did not have prior access to such information. This is a reflection of the crucial role of information on individual's perception of oral health. Rating of oral health as good has been associated with absence of dental caries<sup>28</sup>. In addition, it is highly influenced by oral health behaviour<sup>28</sup>. Healthy oral practices have been associated with good rating of oral health. This is encouraging as self-perception of health influences the behaviour of individuals and in turn improves awareness about dental caries.

## Conclusion

Very few pupils had prior access to information on dental caries and dentists were the major sources. Male gender, higher parental education, previous dental consultations and poor self-rating of oral health were significant predictors

of prior access to information on dental caries. There is a need to actively include oral health in the curriculum of primary schools. In addition, training of teachers and other resource persons with the aim of recruiting them as sources of oral health information to children and invariably the populace may go a long way in improving the oral health of Nigerians.

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