

Assessment Of The Oral Hygiene Habits And The Determinants Among Paediatric Dental Patients In A Nigerian Teaching Hospital.

Olagundoye Olufemi Olakunle, Omotuyole Aderinsola Sophia

Senior Lecturer Department Of Preventive Dentistry, Faculty Of Dentistry, Lagos State University College Of Medicine, Lagos, Nigeria.

Senior Lecturer, Department Of Child Dental Health, Faculty Of Dentistry, Lagos State University College Of Medicine, Lagos, Nigeria.

Abstract

Background- The burden of oral and dental diseases is global and enormous. Preventive approach is the mainstay of the management. Homecare and professional hygiene techniques are well-known procedures that curtail the growth and propagation of the microbial biofilm foundation of the diseases. Emphasising these procedures in the younger age groups will build a future that will minimize the prevalence of these diseases globally. Therefore, this study is to assess the oral hygiene habits and the socioeconomic determinants among the paediatric dental patients in a Teaching Hospital in Nigeria.

Methodology- This was a cross-sectional study involving 111 pediatric dental patients who were the subjects of this study; 50 were male, and 61 were female. Data collection was conducted using a self-administered questionnaire, which comprised both open-ended and closed-ended questions. This was used to obtain the biodata such as the subject's age, sex and educational status. It was also used to collect data on the subjects' oral hygiene habits. Data analysis was carried out using SPSS version 24. Descriptive variables were appropriately analysed. Pearson's chi-square analysis was carried out to determine the relationship between the sociodemographic characteristics of the subjects and their oral hygiene habits. Multinomial regression was carried out to determine the factors associated with the choice of oral hygiene aids. Statistical significance was determined at $p \leq 0.05$.

Results- Mean age was $10. \pm 2.8$ years, 6-11 years old were the majority 63(56.8%) followed by the 12-16 years old 45(40.5%). Only 27(24.3%) of the subjects have had professional cleaning of their teeth in the previous 6 months. All the subjects (100%) in this study used toothbrushes and fluoridated toothpaste to clean their mouth. The most common texture of toothbrush used by the subjects was medium 70(63.1%). The age group and the sex of the subjects were associated with the use of toothpicks ($p=0.01$) and ($p=0.03$), respectively. Sex ($p=0.03$) and professional cleaning within the previous 6 months ($p=0.04$) were associated with the use of dental floss among the subjects.

Conclusion- Oral health education targeted at children and adolescents should be all-encompassing across the age groups, irrespective of sex. Parents should also be encouraged to give their children the necessary support.

Keywords: Oral hygiene habits; Paediatric dental patients; Determinants.

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I. Introduction

Oral health is defined as "a standard of health of the oral and related tissues which enables an individual to eat, speak, and socialise without active disease, discomfort or embarrassment and which contributes to general well-being"(1). The oral health status of an individual immensely impacts systemic health (2). Oral health conditions and diseases in children have a lot of impact on their physical and psychosocial well-being and may also result in absenteeism and inability to participate in domestic and school activities (3,4). Exposure of the oral cavity to food and other materials creates a medium where microorganisms thrive and propagate in the form of bacterial biofilm (5). This results in dental caries, inflammation of the gingival tissues (gingivitis), which progresses if undisturbed into advanced periodontal disease (periodontitis), it may also give rise to halitosis (5, 6). Periodontal disease is responsible for a large proportion of the loss of teeth in developing countries globally (6). Prevention of oral diseases is essential to reduce their burden and implications on the population, especially in children (7,8). It is based almost entirely on effective oral health behavior which is described as an individual's action as it concerns their oral health and well-being, often an offshoot of their beliefs (9,10). Oral hygiene habits and behaviour include professional healthcare utilisation, choice of toothbrushes and toothpastes, technique, frequency and duration of tooth brushing, use of dental flossing and other oral hygiene aids. Oral hygiene behaviour, attitudes and beliefs form during childhood and develop into adolescence and adulthood (9,10).

A German study involving 117 children; 68% reported brushing their teeth twice-daily, 27% reported three times daily, and 3% reported they brush their teeth only once a day (11). A study in Pradesh India, indicated that only 34 % of the children brushed their teeth twice daily, while only 22% of them used the correct technique of brushing (12). In another study involving 700 school children in Dewangere, India, all the participants used a toothbrush and toothpaste to clean their teeth. About 70% of them brush once daily, while about 30% brush twice daily; none brushed more than twice daily. About 30% of the children use horizontal strokes in brushing their teeth, while 7% of them use vertical strokes, 50% of them use a combination of stroke and 13.4% used circular technique. About 79% of them clean their tongue using tongue scrapers (13). A previous study in Lagos, Nigeria, reported that 75% of the schoolchildren had never had a dental visit before, and 66% never used dental floss before (14). In another Nigerian study, more than 60% of the children brushed their teeth twice or more everyday with about 7.0% of them cleaning after meals. About 67.5% spent three minutes or more brushing their teeth. Only 13.2% of them cleaned interdentally, and just about 7.6% of them used dental floss (15).

The global burden of oral and dental diseases is enormous; proper and effective oral hygiene habits and behaviour must be developed early in the younger age groups so that they will form an enduring oral health character as they become adults. This study is therefore to assess the oral hygiene habits of the paediatric dental patients attending the dental centre of a tertiary hospital in Lagos, Nigeria.

II. Methodology

This study was conducted in the Paediatric dentistry clinic of the Child Dental Health Department of the Lagos State University Teaching Hospital (LASUTH), Ikeja, Lagos, Nigeria. LASUTH is a tertiary health institution located in Lagos, a metropolitan city in southwest Nigeria.

This was a cross-sectional study involving 111 pediatric dental patients who were the subjects of this study; 50 were male, and 61 were female. Convenient sampling technique was used for selecting the sample. The inclusion criteria included consenting subjects aged 2 to 16 years. Participants who do not consent to the study or whose parents do not consent to the study were excluded from the study. Participants who were not accompanied by their parents were also excluded.

Data collection was conducted using a self-administered questionnaire, which comprised both open-ended and closed-ended questions. This was used to obtain the biodata such as the subject's age, sex and educational status. It was also used to collect data on the subjects' oral hygiene habits, such as professional cleaning of their teeth in the last 6 months, what they use to clean their teeth and what they use with it, their favourite texture of brush, their technique and frequency of brushing, other oral hygiene aids used and the frequency of use. Written informed consent was obtained from the subjects and their parents before they participated in the study. Ethical approval for this research was obtained from the Health Research and Ethics Committee of Lagos State University Teaching Hospital (LASUTH).

Data analysis was carried out using SPSS version 24. For continuous descriptive variables, such as age, sex and educational status, the mean, measures of variability, minimum, and maximum were determined. Simple frequency and percentages were determined for categorical variables such as age groups, sex, educational status, and oral hygiene habits. Pearson's chi-square analysis was carried out to determine the bivariate relationship between the sociodemographic of the subjects and their oral hygiene habits. Multinomial regression was carried out to determine the factors associated with the choice of oral hygiene aids, excluding toothbrushes and toothpastes (these were constants because all the participants use toothbrushes and toothpaste). Statistical significance was determined at $p \leq 0.05$.

III. Results

A total of 111 subjects participated in this study; 50(45%) were males, and 61(55%) were females. Mean age was $10. \pm 2.8$ years, 6-11 years old were the majority 63(56.8%) followed by the 12-16 years old 45(40.5%) while the least were the 2-5years old 3(2.7%) (Figure 1).

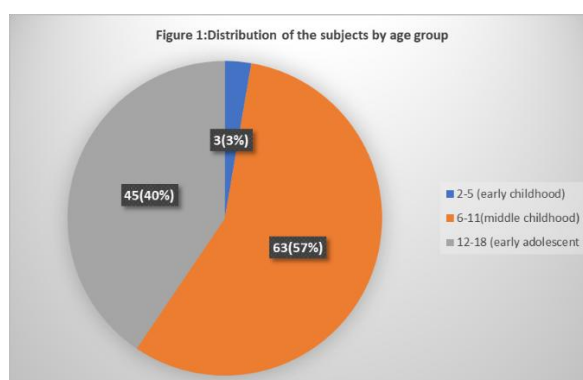


Table 1 showed that the majority of the subjects were secondary school students, 63(56.8%), followed by those in the primary level of education, 42(37.8%), and the least were those in the tertiary level of education, 2(1.8%). Most of the subjects have not had a professional cleaning of their mouth within the last 6 months 84(75.7%), while 27(24.3%) had. All the subjects (100%) in this study used toothbrushes and fluoridated toothpaste to clean their mouth. The most common texture of toothbrush used by the subjects was medium 70(63.1%), followed by those who used soft 30(27%), 2(1.8%) used hard textured toothbrush. A large proportion of the subjects used a combination of techniques in brushing their teeth, 60(54.1%), followed by those that use horizontal technique, 23(20.7%), and only 8(7.2%) used the circular technique. Most 66(59.5%) of the subjects brushed their teeth once daily, 44(39.6%) brushed twice daily, while only one brushed more than twice daily. Seventy (63.1%) reported using other oral hygiene aids; out of which most of them 41(58.6%) used dental floss, 28(49%) used toothpicks, while only one (1.4%) used a tongue scraper. A lot more of the subjects used the oral hygiene aids only once daily, 41(58.6%), 23(32.9%) used it twice daily, while 6(8.6%) used it more than twice daily.

Table 1: Description of the variables

Variable		Frequency	Percent
Educational status	Nursery	4	3.5
	Primary	42	37.8
	Secondary	63	56.8
	Tertiary	2	1.8
Professional cleaning in the last 6 months	Yes	27	24.3
	No	84	75.5
Texture of the toothbrush	Very hard	2	1.8
	Hard	9	8.1
	Medium	70	63.1
	Soft	30	27
Technique of brushing	Horizontal	23	20.7
	Vertical	20	18
	Circular	8	7.2
	Combination	60	54.1
Frequency of brushing	Once daily	86	59.5
	Twice daily	44	39.6
	More than twice daily	1	0.9
		70	63.1
Use of other oral hygiene aids.	Toothpicks	28	40
	Dental floss	41	58.6
	Tongue scrapers	1	1.4
	None	41	36.9
		41	58.6
Frequency of use of other oral hygiene aids	Once daily	41	58.6
	Twice daily	23	32.9
	More than twice daily	6	8.6

Table 3 showed the bivariate association of the oral hygiene habits of the subjects and their sociodemographic status. Professional cleaning of the teeth in the last 6 months showed a statistically significant association with the age of the subjects ($p=0.001$). Most 84(75.7%) of the subjects across the age groups did not have professional dental prophylaxis in the previous 6 months. None of the 2-5 years age group, 8(12.7%) of the 6-11 years age group, and 19(42.2%) of the 12-16 years age group reported having professional cleaning done. There was no statistically significant association of professional cleaning with the sex of the subjects ($p=0.05$). There was a statistically significant association between professional cleaning of the teeth in the last 6 months and the educational status of the subjects ($p=0.01$). There was no statistically significant association of the texture of the toothbrush used and any of the sociodemographic variables; this was also true for the technique of brushing and the frequency of brushing ($p>0.05$). While just 70(63.1%) of the subjects use other oral hygiene products, the use of other oral hygiene aids was significantly associated with the sex of the subjects ($p=0.006$) with majority of the male subjects 18(60%) using toothpicks, while majority of the female subjects 30(75%) used dental floss, only one subject (male) 1(3.3%) used tongue scraper. There was no statistically significant association between the use of other oral hygiene products and age groups of the subjects, even though the use of dental floss was 18(52.9%) of the 6-11 years age group and 22(64.7%) of the 12-18 years age group. Among the 2-5 years age group, only one subject reported the use of a toothpick and dental floss each. There was also no significant association between use of other oral hygiene aids and the educational status of the subject; the use of dental floss was commonest and highest among those of primary 16(55.2%) and secondary 24(61.5%) levels. The frequency of use of the oral hygiene products was not significantly associated with any of the sociodemographic variables

Table 2: Chi-square analysis of the sociodemographic variables and the oral hygiene habits

Variables	Age group	Sex	Educational status
Professional cleaning in last 6 months	0.001*	0.41	0.01*
Texture of the toothbrush used	0.10	0.22	0.67
Technique of brushing	0.53	0.89	0.94
Frequency of brushing	0.21	0.49	0.47
Use of other oral hygiene aids	0.21	0.006*	0.61
Frequency of use of the other oral hygiene aids	0.37	0.88	0.20

Multinomial logistic regression revealed that the age group of the subjects is associated with the use of toothpicks ($p=0.01$) OR (6.1) CI (1.55-24.1). Sex of the subjects was also associated with use of toothpicks ($p=0.03$) OR (0.3) CI (0.10-0.90) when the covariates were adjusted for. Sex ($p=0.03$) OR (3.7) CI (1.15-12.02) and professional cleaning within the previous 6 months ($p=0.04$) OR (4.5) CI (1.10-18.85) were associated with the use of dental floss when other covariates were adjusted for. All the participants (100%) used toothbrushes and toothpastes; they are statistical constants and cannot be included in the analysis.

IV. Discussion

The majority of the subjects were secondary school students 63(56.8%) and primary school students 42(37.8%). Only a few of the subjects, 27(24.3%), had a professional cleaning of their mouth within the previous 6 months. This exemplifies the low level of dental facility utilisation and preventive health-seeking behaviour in Nigeria (16). All the subjects (100%) in this study used toothbrushes and fluoridated toothpaste to clean their mouth. Medium textured toothbrush was the most commonly used by the subjects, 70(63.1%). A large proportion of the subjects used a combination of techniques in brushing their teeth, 60(54.1%), followed by those that use horizontal technique, 23(20.7%). About 60% of the subjects brushed their teeth once daily, while about 40% brushed twice daily, and only one brushed more than twice daily. This is similar to a previous Indian study (13). About 59% of the 70(63.1%) that used other oral hygiene aids used dental floss, while about 40% used toothpicks, and only one (1.4%) used a tongue scraper. This signifies low emphasis on tongue cleaning in the population studied, in contrast to an Indian study where 79% of the participants used tongue scrapers (13). This calls for intensified oral health education among these age groups, which should emphasise tongue cleaning. About 37% of the subjects used the oral hygiene aids once daily, while about 21% used them twice daily. A previous study in Lagos, Nigeria, reported that 66% of the participants never used dental floss before (14). In another Nigerian study, only 13.2% of the participants cleaned interdentally, and just about 7.6% of them used dental floss (15).

Professional cleaning of the teeth in the previous 6 months was significantly associated with the age of the subjects; however, none of the 2-5 years age group, only 12.7% of the 6-11 years age group, and 42.2% of the 12-16 years age group reported having professional cleaning done. It can be deduced that awareness of their oral health increased with the age of the subjects. This is comparable to a study in northern Nigeria, where dental utilisation rose and peaked at the 21-30 years age group (17). There was no significant difference between the male and female subjects as regards the professional cleaning of their teeth. The educational status of the subject significantly impacted their attitude toward professional cleaning of their teeth, similar to previous studies (18,19). Age, sex and educational status of the subject were not associated with any significant difference in their choice of texture of toothbrush, frequency and technique of brushing. Among those who used other oral hygiene aids apart from toothbrush and toothpaste, sex was associated with a significant difference in their choices, 60% of the male subjects used toothpicks, while 75% of the female subjects used dental floss. Studies have consistently shown that more females preferred and used dental floss than males (20,21,22). Age and educational status were not associated with any significant difference in the subjects' choice of oral hygiene products. Multivariate analysis revealed that the age group and sex of the subjects were associated with the use of toothpicks, with an odds ratio (OR) of 6.1 and 0.3, respectively, when the covariates were adjusted for. Also, sex and professional cleaning within the previous 6 months were associated with the use of dental floss with an odds ratio of 3.7 and 4.5, respectively, when other covariates were adjusted for. Dental visits for professional tooth cleaning, usually accompanied by oral health education, may have positively influenced the use of dental hygiene aids such as dental floss.

V. Conclusion

This study revealed that very few children benefit from professional cleaning of their teeth; they also scored low in the cleaning of their tongue and interdental spaces. This may have resulted from low oral health education and poor parental attitude to dental health. The increase in the age of the children and their educational status also impacted their experience of professional cleaning of their teeth. Sex and dental visits influenced the use of dental floss. It is recommended that oral health education should be targeted at both sexes and all age groups without leaving the children out. Emphasis should be placed on regular dental visits and professional cleaning of their teeth, meticulous use of dental floss and tongue cleaners needs to be underscored among the

paediatric population in our communities. All-encompassing oral health education and promotion need to be included in the school curriculum from the early grades. The parents need to be encouraged to give the necessary support to enhance their children's interest in maintaining excellent oral and dental health. The government should equip the health facilities with the necessary equipment and human resources while also providing easy access to dental care for children and adolescents.

Conflict of interest - None

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