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Demographic details of oral hygiene practice and dental service utilization of Medical Doctors in Port Harcourt

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Abstract

Maintenance of good oral hygiene practice is the key to having a good oral health and invariably, an improved quality of life. Consecutive consenting medical practitioners attending the 2019 National Medical Association Annual General Meeting were recruited for this study. Data was analyzed using the Statistical Package for Social Sciences version 20.0 (IBM SPSS Statistics Armonk New York). One hundred and fifty-six participants were recruited. Ninety-four (60.3%) were male and 62 (39.7%) females. Age ranged between 23 and 72 years with a mean age of 41.6 ± 11.18 years. Almost all participants cleaned their teeth with toothbrush and fluoridated toothpaste. More males, more consultants and more participants in the federal hospital brushed their teeth twice daily and used medium bristled toothbrushes. Equal number of males and females used dental floss and interdental brushes. More consultants than all other cadre of participants and more participants in the federal hospital used dental floss ($p=0.02$). More participants in the federal hospital visited the dentist in the past ($p=0.05$); however, more males and more consultants did not have time to visit. Twice the participants with six to ten years of practice compared to those with more than fifteen years of practice did not access dental service because they felt they had no dental problem ($p=0.248$). The longer the year of medical practice, the better the oral hygiene practice. One out of every 5 participants regularly visit the dentists; a consultant will likely visit more regularly than other designated participants.

Keywords: Oral hygiene practice; Dental utilization; Demographics; Medical doctors

1. Introduction

Good oral health improves quality of life. Oral health has been described as the standard of health of the oral and related tissues which enables an individual to eat, speak and socialize without active disease, discomfort or embarrassment and which contributes to general well-being [1].

Oral hygiene is the practice of keeping one's mouth clean and free of diseases such as gingivitis (inflammation of the gingiva) and periodontitis (inflammation of the periodontal tissues) and other oral problems (for example, bad breath) by regular tooth brushing and interdental cleaning (cleaning in between the teeth) [2].

Generally, it has been advocated that to maintain a good oral hygiene, toothbrushing should be done at least twice daily using fluoridated toothpaste; after breakfast and before going to bed. Tooth brushing is the mechanical removal of dental plaque from tooth surfaces. The oral cavity contains commensal microflora which can switch to opportunistic pathogenic flora through complex changes in their environment [3-5]. Dental plaque contains microorganisms in a

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dynamic environment forming a biofilm and producing hormones and by-products that stimulate the host immune system and can harm the teeth and their supporting tissues [4,6,7].

Furthermore, it is difficult to clean all the teeth surfaces with the toothbrush alone as 40% of them are interdental [8]. It is important to clean the interdental spaces with interdental cleaning aids such as dental floss and interdental brushes or tapes. It has been reported that 80% of dental plaque can be removed by flossing [9]. Thus, interdental cleaning is as important as tooth brushing [2].

The use of toothpicks is not encouraged, and though these items are readily available in Nigeria, they can cause trauma to the gingivae and cause systemic complications if accidentally ingested [10-15]. Toothpicks are used to remove food debris that are trapped between teeth after meals especially meals that contain proteins and fibres.

There is the need to access dental services especially now that good oral health is seen as essential to maintaining general health and well-being [16] It has been reported that people who visit the dentist more frequently have better oral health and fewer oral problems and are more satisfied with their oral health when compared with those who do not [17-19].

Several reasons have been reported for failure to access dental services promptly and regularly. These are feelings that symptoms will resolve on its own, trying other medications, financial constraints, feelings of no dental problems, bad dental experience, fear of dental treatments, among others [20,21].

To the best knowledge of the authors, no study has been done on the oral hygiene practice of doctors in Port Harcourt, South-South of Nigeria. This study therefore, examined the association between the oral hygiene practice and dental service utilization of the medical doctors in Port Harcourt based on demographics.

2. Material and methods

This was a cross-sectional study done among medical doctors in Port Harcourt. All consenting consecutive medical practitioners that attended the 2019 Annual General Meeting of the Nigeria Medical Association of Nigeria, Port Harcourt; Rivers States Branch that held in August, 2019 were recruited for this study.

Participants were in practice in private hospitals, state hospitals (Brathwaite Memorial Hospital and Primary Health Centers) and federal hospital (University of Port Harcourt Teaching Hospital).

Self-administered questionnaires that elicited the participants demographics were used to obtain information on oral hygiene practice and dental service utilization.

Ethical approval for the study was obtained from the University of Port Harcourt Teaching Hospital Research and Ethics Committee.

Data was analysed using the Statistical Package for Social Sciences version 20.0 (IBM SPSS Statistics Armonk New York). The results were presented as tables and cross-tabulations. Chi-square test was carried out for statistical significance. $P < 0.05$ was considered statistically significant.

3. Results

One hundred and fifty-six medical practitioners were recruited for this study, 94(60.3%) were male and 62(39.7%) were females giving a M: F of 1:1.52. Age ranged between 23 and 72 years with a mean age of 41.6 ± 11.18 years. Forty-three percent of participants were consultants in different fields of medicine and thirty four percent had been in practice for over fifteen years. Table 1

Table 1 Participants Demographics

Variables	Frequency	Percentage
Sex		
Male	94	60.3
Female	62	39.7
Age Group		
21-30	18	11.6
31-40	69	44.2
41-50	35	22.5
51-60	20	12.8
61-70	13	8.3
>70	1	0.6
Tribe		
Yoruba	4	2.6
Igbo	31	19.9
South-South	121	77.6
Designation		
House officer	11	7.1
Registrar	42	26.9
Senior registrar	35	22.4
Consultants	68	43.6
Practise(years)		
0-5	30	19.2
6-10	46	29.5
11-15	27	17.3
>15	53	34.0
Total	156	100.0

Table 2 shows the association between participants oral hygiene practice and demographics (gender, designation and year of practice). Almost all participants brushed with toothbrush and fluoridated toothpaste. More males than females {53(56.4%); 41(43.6%)}, equal number of registrars and senior registrars {23(24.5%)}, more consultants {41(43.5%)}, more participants {50(53.2%)} in the federal hospital and those with more than fifteen years of practice brushed their teeth twice daily. More males {58(56.9%)}, more consultants {47(46.1%)}, more participants {49(48%)} in the federal hospital used medium bristled toothbrushes. Few participants {5(2.2%)} brushed with roll technique.

As regards the use of interdental cleaning aids; equal number of males and females {36(50%)} used dental floss and interdental brushes. More consultants {36(50%)} than all other cadre of participants used dental floss. Statistical analysis showed no statistical significance Table 2.

Table 3 shows the association between oral hygiene practise and year of practise. The longer the year of medical practise, the better the oral hygiene practise.

Table 2 Association between participants oral hygiene practice and some demographics

Variables		Total	Gender		P	Designation				P	Centre			p
			Male	Female		House Officer	Registrar	Senior Registrar	Consultant		Private Hospital	State Hospital	Federal Hospital	
		N (%)	N (%)	N (%)		N (%)	N (%)	N (%)	N (%)		N (%)	N (%)	N (%)	
Teeth cleaning material	Toothbrush and paste	144(92.3)	86(59.7)	58(40.3)	0.637	11(7.6)	39(27.1)	33(22.9)	61(42.4)	0.620	27(18.8)	47(32.6)	70(48.6)	0.451
	Toothbrush + paste + chewing stick	12(7.7)	8(66.7)	4(33.3)		0(0.0)	3(25.0)	2(16.7)	7(58.3)		1(8.3)	3(25.0)	8(66.7)	
Frequency of brushing	Once daily	60(38.5)	40(66.7)	20(33.3)	0.285	4(6.7)	18(30.0)	12(20.0)	26(43.3)	0.852	16(26.7)	16(26.7)	28(46.7)	0.164
	Twice daily	94(60.3)	53(56.4)	41(43.6)		7(7.4)	23(24.5)	23(24.5)	41(43.6)		12(12.8)	32(34.0)	50(53.2)	
	Every other day	1(0.6)	0(0.0)	1(100.0)		0(0.0)	0(0.0)	0(0.0)	1(100.0)		0(0.0)	1(100.0)	0(0.0)	
	After every meal	1(0.6)	1(100.0)	0(0.0)		0(0.0)	1(100.0)	0(0.0)	0(0.0)		0(0.0)	1(100.0)	0(0.0)	
Type of brush	Soft	25(16.0)	15(60.0)	10(40.0)	0.320	2(8.0)	7(28.0)	9(36.0)	7(28.0)	0.639	3(12.0)	11(44.0)	11(44.0)	0.400
	Medium	102(65.4)	58(56.9)	44(43.1)		7(6.9)	28(27.5)	20(19.6)	47(46.1)		20(19.6)	33(32.4)	49(48.0)	
	Hard	29(18.6)	21(72.4)	8(27.6)		2(6.9)	7(24.1)	6(20.7)	14(48.3)		5(17.2)	6(20.7)	18(62.1)	
Brushing technique	Horizontal (H)	11(7.1)	6(54.5)	5(45.5)	0.779	1(1.9)	4(36.4)	2(18.2)	4(36.4)	0.727	3(27.3)	5(45.5)	3(27.3)	0.178
	Vertical (V)	41(26.3)	25(61.0)	16(39.0)		3(7.3)	6(14.6)	10(24.4)	22(53.7)		3(7.3)	14(34.1)	24(58.5)	
	H+V	99(63.5)	61(61.6)	38(38.4)		7(7.1)	31(31.3)	21(21.2)	40(40.4)		20(20.2)	31(31.3)	48(48.5)	
	Roll	5(3.2)	2(40.0)	3(60.0)		0(0)	1(20.0)	2(40.0)	2(40.0)		2(40.0)	0(0.0)	3(60.0)	

Interdental Cleaning	Yes	137(87.8)	82(59.9)	55(40.1)	0.783	9(6.6)	38(27.7)	29(21.2)	61(44.5)	0.641	24(17.5)	42(30.7)	71(51.8)	0.461
	No	19(12.2)	12(63.2)	7(36.8)		2(10.5)	4(21.1)	6(31.6)	7(36.8)		4(21.1)	8(42.1)	7(36.8)	
Total		156(100.0)	94(60.3)	62(39.7)		11(7.1)	42(6.9)	35(22.4)	68(43.6)		28(17.9)	50(32.1)	78(50.0)	
Reasons for not cleaning interdentally (n=19)	No time	8(42.1)	5(62.5)	3(37.5)	0.839	0(0.0)	4(50.0)	2(25.0)	2(25.0)	0.077	2(25.0)	3(37.5)	3(37.5)	0.825
	Not available	7(36.8)	4(57.1)	3(42.9)		2(28.6)	0(0.0)	3(42.9)	2(28.6)		2(28.6)	3(42.9)	2(28.6)	
	Not aware of use	4(21.1)	3(75.0)	1(25.0)		0(0.0)	0(0.0)	1(25.0)	3(75.0)		0(0.0)	2(50.0)	2(50.0)	
Interdental cleaning item (n=137)	Dental floss	72(52.5)	36(50.0)	36(50.0)	0.139	3(4.2)	20(27.8)	13(18.1)	36(50.0)	0.691	7(9.7)	21(29.2)	44(61.1)	0.018*
	Tooth pick	62(45.3)	44(71.0)	18(29.0)		6(9.7)	17(27.4)	15(24.2)	24(38.7)		15(24.2)	21(29.2)	26(41.9)	
	Interdental brushes	2(1.5)	1(50.0)	1(50.0)		0(0.0)	1(50.0)	0(0.0)	1(50.0)		2(100.0)	0(0.0)	0(0.0)	
	Others	1(0.7)	1(100.0)	0(0.0)		0(0.0)	0(0.0)	1(100.0)	0(0.0)		0(0.0)	0(0.0)	1(100.0)	
Time of interdental cleaning (n=137)	After brushing	5(3.7)	1(20.0)	4(80.0)	0.084	0(0.0)	3(60.0)	1(20.0)	1(20.0)	0.743	0(0.0)	5(100.0)	0(0.0)	0.020*
	After eating	106(77.3)	69(65.1)	37(34.9)		7(6.6)	26(24.5)	23(21.7)	50(47.2)		19(17.9)	27(25.5)	60(56.6)	
	Others	26(19.0)	12(46.2)	14(53.8)		2(7.7)	9(34.6)	5(19.2)	10(38.5)		5(19.2)	10(38.5)	11(42.3)	

Table 3 Association between participants oral hygiene and year of graduation

Variables		Year of practice				P
		0-5 (n=30)	6-10 (n=46)	11-15 (n=27)	>15 (n=53)	
		N (%)	N (%)	N (%)	N (%)	
Teeth cleaning material	Toothbrush and paste	29(20.1)	44(30.6)	24(16.7)	47(32.6)	0.399
	Toothbrush + paste + chewing stick	1(8.3)	2(16.7)	3(25.0)	6(50.0)	
Frequency of brushing	Once daily	13(21.7)	23(38.3)	6(10.0)	18(30.0)	0.276
	Twice daily	17(18.1)	22(23.4)	21(22.3)	34(36.2)	
	Every other day	0(0.0)	0(0.0)	0(0.0)	1(100.0)	
	After every meal	0(0.0)	1(100.0)	0(0.0)	0(0.0)	
Type of brush	Soft	8(32.0)	8(32.0)	4(16.0)	5(20.0)	0.396
	Medium	18(17.6)	28(27.5)	20(19.6)	36(35.3)	
	Hard	4(13.8)	10(34.5)	3(10.3)	12(41.4)	
Brushing technique	Horizontal (H)	5(45.5)	3(27.3)	0(0.0)	3(27.3)	0.077
	Vertical (V)	5(12.2)	12(29.3)	8(19.5)	16(39.0)	
	H+V	20(20.2)	31(31.3)	16(16.2)	32(32.3)	
	Roll	0(0.0)	0(0.0)	3(60.0)	2(40.0)	
Interdental Cleaning	Yes	23(16.8)	41(29.9)	22(16.1)	51(37.2)	0.044*
	No	7(36.8)	5(26.3)	5(26.3)	2(10.5)	
Reasons for not cleaning interdentally (n=19)	No time	3(37.5)	3(37.5)	2(25.0)	0(0.0)	0.053*
	Not available	4(57.1)	2(28.6)	1(14.3)	0(0.0)	
	Not aware of need	0(0.0)	0(0.0)	2(50.0)	2(50.0)	
Interdental cleaning item (n=137)	Dental floss	10(13.9)	21(29.2)	10(13.9)	31(43.1)	0.140
	Tooth pick	11(17.7)	20(32.3)	12(19.4)	19(30.6)	
	Interdental brushes	1(50.0)	0(0.0)	0(0.0)	1(50.0)	
	Others	1(50.0)	0(0.0)	0(0.0)	0(0.0)	
Time of interdental cleaning (n=137)	After brushing	1(20.0)	3(60.0)	1(20.0)	0(0.0)	0.127
	After eating	16(15.1)	30(28.3)	19(18.3)	41(39.4)	
	Others	6(23.1)	8(30.8)	2(7.7)	10(38.5)	

Table 4 showed the association between participants dental service utilization and some demographics. More males {59(57.3%)} visited the dentists in the past. It was statistically significant that participants in the teaching hospital visited the dentist in the past more than others. One out of every 5 participants regularly visit the dentists; a consultant will likely visit regularly than other designated participants. Statistical analysis showed this to be significant. Reasons given by participants for non-utilization of dental services were various, ranging from no time to fear of dental treatment. More males, {35(58.3%)} and more consultants {27(45%)} did not have time and equal number of residents and senior registrars felt they have no dental problem. Statistical analysis showed this to be significant.

Table 4 Association between dental service utilization and participants demographics

Variables		Total	Gender		P	Designation				P	Centre			p
			Male	Female		House Officer	Registrar	Senior Registrar	Consultant		Private Hospital	State Hospital	Federal Hospital	
		N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)		
Previous dental Visit (n=156)	Yes	103(66.0)	59(57.3)	44(42.7)	0.290	7(6.8)	25(24.3)	21(20.4)	50(48.5)	0.378	14(13.6)	31(30.1)	58(56.3)	0.050*
	No	53(34.0)	35(66.0)	18(34.0)		4(7.5)	17(32.1)	14(26.4)	18(34.0)		14(26.4)	19(35.8)	20(37.7)	
Reasons for past dental visits n= (103)	Check up	16(16.6)	5(31.3)	11(68.8)	0.112	1(6.3)	7(43.8)	1(6.3)	7(43.8)	0.456	3(18.8)	5(31.3)	8(50.0)	0.231
	Scaling & Polishing	41(39.8)	27(65.9)	14(34.1)		5(12.2)	9(22.0)	9(22.0)	18(43.9)		7(17.1)	14(34.1)	20(48.8)	
	Extraction	16(15.6)	11(68.8)	5(31.3)		1(6.3)	4(25.0)	5(31.3)	6(37.5)		2(12.5)	6(37.5)	8(50.0)	
	Fillings	9(8.7)	6(66.7)	3(33.3)		0(0.0)	2(22.2)	1(11.1)	6(66.7)		1(11.1)	3(33.3)	5(55.6)	
	Others	21(20.3)	10(47.6)	11(52.4)		0(0.0)	3(14.3)	5(23.8)	13(61.9)		1(4.8)	3(14.3)	17(81.0)	
Regular dental visits (n=156)	Yes	21(13.5)	15(71.4)	6(28.6)	0.261	1(7.4)	4(19.0)	1(4.8)	15(71.4)	0.038*	4(19.0)	4(19.0)	13(61.9)	0.371
	No	135(86.5)	79(58.5)	56(41.5)		10(7.4)	38(28.1)	34(25.2)	53(39.3)		24(17.8)	46(34.1)	65((48.1)	
Reason for non-regular visit (n=135)	No time	60(38.5)	35(58.3)	25(41.7)	0.503	6(10.0)	16(26.7)	11(18.3)	27(45.0)	0.109	9(15.0)	20(33.3)	31(51.7)	0.001*
	No dental problem	62(39.7)	34(54.8)	28(45.2)		4(6.5)	20(32.3)	20(32.2)	18(29.0)		12(19.4)	24(38.7)	26(41.9)	
	Bad past experience	7(4.5)	5(71.4)	2(28.6)		0(0.0)	1(14.3)	0(0.0)	6(85.7)		3(42.9)	1(14.3)	3(42.9)	
	Fear of treatment	6(3.8)	5(83.3)	1(16.7)		0(0.0)	1(16.7)	3(50.0)	2(33.3)		0(0.0)	1(16.7)	5(83.3)	

The crosstab of participants dental service utilization with year of practise showed that more participants with over 15 years practise visited the dentist in the past for treatments. Only 21(13.5%) go regularly. Twice the participants {28(45.2%)} with six to ten years of practice compared to those with more than fifteen years of practice {14(22.6%)} did not access dental service because they felt they had no dental problem. Statistical analysis however showed no statistical difference. Table 5

Variables		Total	Year of practice				p
			0-5 (n=30)	6-10 (n=46)	11-15 (n=27)	>15 (n=53)	
			N (%)	N (%)	N (%)	N (%)	
Previous dental visit(n=156)	Yes	103(66.0)	150.060(14.6)	28(27.2)	16(15.5)	44(42.7)	0.010*
	No	53(34.0)	15(28.3)	18(34.0)	11(20.8)	9(17.0)	
Reasons for past dental visit (n=103)	Check up	16(15.6)	2(12.5)	5(31.3)	2(12.5)	7(43.8)	0.021*
	Scaling & Polishing	41(39.8)	10(24.4)	12(29.3)	6(14.6)	13(31.7)	
	Extraction	16(15.6)	2(12.5)	6(37.5)	3(18.8)	5(31.3)	
	Fillings	9(8.7)	0(0.0)	1(11.1)	0(0.0)	8(88.9)	
	Others	21(20.3)	1(4.8)	4(19.0)	5(23.8)	11(52.4)	
Regular dental visits (n=156)	Yes	21(13.5)	3(14.3)	4(19.0)	0(0.0)	14(66.7)	0.050*
	No	135(86.5)	27(20.0)	42(31.1)	27(20.0)	39(28.9)	
Reasons for no regular dental visits (n=135)	No time	60(38.5)	18(30.0)	13(21.7)	14(23.3)	15(25.0)	0.248
	No dental problem	62(39.7)	9(14.5)	28(45.2)	11(17.7)	14(22.6)	
	Bad past experience	7(4.5)	0(0.0)	0(0.0)	0(0.0)	7(100.0)	
	Fear of treatment	6(3.8)	0(0.0)	1(16.7)	2(33.3)	3(50.0)	

4. Discussion

One hundred and fifty-six participants were recruited for this study. More males {94(60.3%)} than females {62(39.7%)}. Age ranged between 23 and 72 years with a mean age of 41.6±11.18 years.

Oral hygiene aids that can be used to maintain good oral hygiene are toothbrushes and fluoridated toothpastes. In addition, in Nigeria and other parts of the world; the use of chewing sticks as traditional cleaning aids has been recognized [22-24]. Chewing sticks have been shown to have beneficial effects on oral health [23,24]. In this study almost all the participants (92.3%) used toothbrush and toothpaste in cleaning their teeth. This is similar to a study done in Lagos and other parts of the world among medical doctors that reported that 99.1% and over 90% of their participants respectively used same [25,26]. In this study, 7.7% of participants used chewing stick in addition to tooth brushes in cleaning their teeth. This is comparable to the study done in Ile-ife in Nigeria that reported that 7% of their participants used chewing sticks as an additional oral hygiene aid [27], and contrasted with a study done in Lagos that reported a higher percentage of 12.8% [25].

Of all the available toothbrushing techniques, the roll and bass techniques are highly recommended because they minimize trauma to the gingival tissues. This study recorded that 3.2% of participants; more females than males, used the roll technique. This is lower than that recorded in the Lagos study [25]. This showed a poor knowledge of the recommended brushing techniques among the participants. 63.5% of participants; more males, more consultants and more participants in the federal hospital used both vertical and horizontal scrubs. In this study, fewer participants

11(7.1%) used the horizontal scrub only. This is higher than a study done in Lagos, Nigeria among medical interns that recorded that 5.6% of their participants used the horizontal scrub technique and that done among undergraduate students in Ile-ife that recorded 37.1% [25,27].

Brushing twice daily, (before going to bed and after breakfast) has been reported to enhance oral hygiene [28]. In this study, three-fifth (60.3%) brushed twice daily; more males, greater number of consultants and more participants in federal hospital. This is comparable to an India study [29] among dental professionals that recorded 55.9% but higher than other studies in Nigeria that recorded 24.2% and 39.9% [25,27]. This showed that there is a higher awareness of recommended frequency of toothbrushing among our participants.

In this study, 65.4% of participants, more males, consultants, more participants in the federal hospital and those with more than 15 years of medical practice used medium bristled toothpastes. This is comparable to a study among medical house officers in Benin-city, Nigeria that reported a 68% frequency of use among their participants with no gender difference [30].

Since brushing alone does not adequately clean the teeth because they cannot be used interdentially, the use of interdental cleaning aids such as dental floss and interdental brushes have been encouraged [31]. In this study, half of the participant used dental floss and this is highly commendable and not surprising because of the caliber of the participants. There was no gender difference in the use of dental floss in this study. Other studies reported lower frequencies and more females than males using dental floss [32- 39].

Regular dental visits once every six months is highly recommended for good oral health. In this study, 34% of participants had never accessed dental care and only 13.5% and interestingly more males than females access care regularly. This may be due to increased awareness of the need to access dental care among males. Past studies had reported that males do not seek health care as females because they are busy and only come when in extreme pain. [40-44]. The study in Benin-city recorded more females than males accessing dental care [30]. This study recorded a poor dental attendance and this is comparable to other studies done in Nigeria that reported same among other workers [45,46]. About two-fifth of those who visited did scaling and polishing, a preventive measure for dental disease and treatment for gingival inflammation. This is in contrast to other studies that reported dental pain as the reason for seeing the dentist [40-46].

Compliance with ethical standards

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Disclosure of conflict of interest

The authors declare no conflict of interest.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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