ORAL HYGIENE PRACTICES OF DENTAL HOUSE-OFFICERS AND RESIDENTS IN A TEACHING HOSPITAL IN LAGOS, NIGERIA

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ABSTRACT

This paper assesses the oral self-care practices and preventive dental attendance of dentists within a Teaching Hospital in Nigeria. A self-administered questionnaire was distributed among House Officers and Dental Residents at the Dental Clinic of a Teaching hospital in Lagos, Nigeria. Data collected included age, sex, number of years post-qualification, tooth brushing frequency and technique, use of interdental floss and pattern of professional oral prophylaxis. Less than half (45.5%) of the dentists brushed their teeth twice daily. Most (98.9%) of the participants used a medium textured toothbrush, while 55.7% used the roll tooth brushing technique. Nearly 60% of the dentists used interdental floss, while only 14.8% used the floss at least once daily. The use of dental floss was significantly associated with female gender (p=0.004) and work duration of one year and less by dentists in the hospital (p=0.033). Only 38.6% of dentists had done scaling and polishing within the preceding 6 months to the study, while 23.9% claimed to attend the dental clinic for scaling and polishing at 6 monthly intervals. Younger dentists were more likely to have received scaling and polishing than the older ones. This study has highlighted the inadequate observance of some oral hygiene practices such as regular use of interdental floss and six monthly scaling and polishing particularly, among this group of dentists. As oral health care providers and role models, dentists need to be more conscientious in their oral self-care while ensuring proper preventive and dental care for their patients.

Keywords: Oral hygiene practice, Dentists, Nigeria.

INTRODUCTION

Oral health has been defined 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' (Department of Health, 1994). The importance of oral health to overall health is further highlighted in the report by the Surgeon General of the United States (U.S. Department of Health and Human Services, 2000). In addition, the World Health Organization includes freedom from common oral diseases such as periodontal (gum) disease and dental caries in its definition of oral health (World Health Organization, 2014). According to Petersen (2003), periodontal disease and dental caries have been reported to be the two most prevalent global oral health burdens and some of the risk factors for them include poor oral hygiene and tobacco use amongst others.

Oral health behavior involves the observance of good oral hygiene by the individual through recommended oral self-care practices and professional care. Oral self-care is the effective removal of bacterial plaque biofilm from tooth surfaces, which has been identified as the primary etiological factor for periodontal disease and dental caries.

Professional care which has been found to be associated with better oral health outcomes is a recommended practice that requires regular dental clinic attendance (Thompson et al., 2012, Canadian Dental Association, 2014). Thus, majority of practice-based general dental practitioners advice visual examination and probing to detect caries, and routinely provide scaling and polishing to prevent periodontal disease and dental caries for patients of all ages including those who may even be at low-risk of these diseases (Frame et al. 2000) These visits are usually done on a semiannual basis (Frame et al., 2000).

The most important of the recommended oral self-care practices are twice daily tooth-brushing in a systematic manner (last thing at night and on one other occasion) using a fluoridated toothpaste supported with interproximal cleaning using interdental dental brushes or floss at least once daily to remove plaque deposits from the interproximal regions of the teeth (Department of Health and the British Association for the Study of Community Dentistry, 2009). These hygiene measures have been established by dental professionals for the effective removal of bacterial plaque in order to promote a disease-free mouth.

In an effort to improve oral health of most populations, the World Health Organization has set the promotion of self-care as one of its goals for the year 2020 (Hobdell et al., 2003) and to complement this, the National Oral Health policy in Nigeria has also prioritized oral health promotion as one of its key areas of focus (Chukwu, 2012). This is based on the notion that promoting dental care would ensure the absence of disease and the optimal functioning of the mouth as well as its supporting structures and tissues in a way that preserves self-esteem (Hobdell *et al.,* 2003).

As highly trained oral healthcare professionals, the role of the dentists in oral health promotion and dissemination of preventive information is critical (Chukwu, 2012). Dentists are at the forefront of oral health promotion campaigns and do have an important role to play by circulating the right information about good oral hygiene practices to their colleagues, family members and the community at large, which would in the long run impact the nation positively. In view of their importance as role models to their patients, family and the society, their own personal oral hygiene practices should conform to the recommended ones (Singh and Tuli, 2013). This would further enable them to be more effective as oral health care advocates. In order to ensure this, it is imperative to first of all assess their preventive oral hygiene practices. This study was aimed at determining the oral self-care practices and preventive dental attendance of dentists.

MATERIAL AND METHODS

This was a descriptive cross sectional study conducted among house officers and resident doctors working at the Dental Clinics of the Lagos University Teaching Hospital (LUTH), Lagos, Nigeria in June 2012. Self- administered, pre-tested, semi-structured questionnaires were distributed to 115 dentists in the dental outpatient clinics, after obtaining their verbal informed consent. Confidentiality of the respondents was ensured by keeping the questionnaires anonymous leaving out any form of identification of the

respondent. A convenience sampling was employed. The questionnaires had 3 sections. Section A assessed their socio-demographic characteristics. Section B assessed their oral self-care practices, while Section C recorded their dental attendance pattern regarding oral prophylaxis (i.e. scaling and polishing). Data collected from the study was analyzed applying Chi-Square test at a significance level of $p < 0.05$ using EPI INFO statistical software.

RESULTS

Socio-demographic Characteristics

One hundred and fifteen questionnaires were distributed while 108 were filled and returned (93.9% response rate). Eighty eight of these were properly filled and subsequently used for the final analysis. The mean age of the respondents was 28.8 ±4.5 years (age range = 21 - 40 years). They constituted 46 males (52.3%) and 42 females (47.7%). The predominant age group among the respondents was 26-30 years (45.5%). Majority (79.5%) had less than 5 years post qualification from the Dental School. Their demographic characteristics are in shown in Table 1.

Perception of Respondents About Their Periodontal Health

Fifty eight (65.9%) respondents believed that they were giving optimum attention to their periodontal health, while 26 (29.5%) indicated that they were not giving optimum attention to their periodontal health. Four (4.5%) did not respond to this question.

Oral self-care Practices

Most (90.9%) of the respondents cleaned their teeth with toothbrush and tooth paste only. Less than half of the respondents (45.5%) brushed their teeth at least twice daily. The roll technique was used by slightly more than half (54.5%) of the respondents. Nearly all (98.9%) used medium textured tooth brush, while about a third (68.2%) brushed their teeth for duration of 3-5 minutes. Fifty two respondents (59.1%) used interdental floss, while 14.8% used interdental floss at least once daily [Table 2].

Dental Attendance for Scaling and Polishing

Majority of the respondents (88.6%) had done scaling and polishing (S/P) previously. Less than half (43.6%) had done scaling and polishing in the preceding six months [Table 3]. Less than half (47.7%) had utilized the dental facility at LUTH for scaling and polishing treatment. The respondents' frequency of attending the dental clinic for scaling and polishing was mainly due to a perceived need (37.5%). The reasons given by respondents for non-attendance at the LUTH dental clinic for oral prophylaxis (scaling and polishing) included their 'Not having the time' (66.7%), 'lack of enough privacy during treatment' (11.9%), and 'Still settling down to work' (9.5%) amongst other reasons (Figure 1).

Association Between Socio-demographic Characteristics and Oral Self-care Practices

There was a statistically significant association between gender and previous use of interdental floss (p=0.004). There was a statistically significant association between the schedule of the last scaling and polishing done and the age (p=0.042) of the dentists [Table 4].

Dentists with ≤ 1 year of working experience at the LUTH dental clinic had used interdental floss more than those with >1 year of work experience at the LUTH dental clinic (p=0.033) [Table 5].

DISCUSSION

This study set out to assess the preventive oral hygiene practices of dentists considering their key role as front liners in oral health promotion in Nigeria. There is sparse information in published literature on oral hygiene practices of dentists in Nigeria. This study had a predominant population of dentists in the younger age category. The study revealed that all the dentists used tooth brush and paste to clean their teeth. This is not surprising at all and is line with what is expected of this group of dental professionals. What was shocking however was the low frequency of dentists (45.5%) who brushed their teeth at least twice a day. The low frequency observed in our study is quite similar to the 47.5% reported by Folayan et al. (2013) among senior dental students in Nigeria. This is less than the finding from similar studies among dentists in other developing countries such as India (55.9%) (Gopinath, 2010), Iran (59%) (Ghasemi *et al.*, 2007) and Nepal (80.5%) (Wagle *et al.*, 2014). This perhaps raises the question of the level of importance dentists attached to some of the oral hygiene instructions given to their patients. This is more so as, it has been shown that the patterns of oral health behavior in dentists, their beliefs and attitudes, play an important role in the knowledge they impart to their community and the general public (Ghasemi *et al.*, 2007).

Further assessment of their brushing technique revealed some variation, although the roll technique was more commonly utilized. This is at variance with findings in other studies in North India in which the Bass technique was mostly used (Singh and Tuli, 2013).The most commonly recommended methods of brushing are the Bass and Roll techniques. The Roll technique may have been adopted most frequently by the dentists in this study as it is one of the methods commonly demonstrated to dental patients in some of the dental clinics in this hospital. Although, it is pertinent to note that presently there appears to be no consensus by dental health authorities regarding the most superior tooth brushing technique to be adopted (Wainwright and Sheiham, 2014). This was based on a recent study which revealed a wide diversity in recommendations of tooth brushing methods by dental associations, toothpaste and toothbrush companies and in dental texts (Wainwright and Sheiham, 2014). The study stressed the need for higher levels of evidence regarding the effectiveness of tooth-brushing techniques required. In view of this, it is advisable for dentists and other dental professionals to recommend and adopt a technique that is most suited to the individual and effective in removing dental plaque. In

addition, the technique should cause minimal damage to the hard and soft tissues. Based on this assertion, it was encouraging to note that the scrub technique was the least utilized among the dentists.

Another good aspect of the oral hygiene behavior of dentists in the present study was that no one used a hard-textured tooth brush. This has been generally discouraged because of its potential association with gum recession, cervical abrasion and resultant dentine sensitivity. Most of the dentists in this study (68.2%) brushed their teeth for an average duration of 3-5 minutes, 27.3% for 1-3 minutes. This is in keeping with the 3 minutes recommended as the ideal duration for manual brushing (Ashley, 2001) and is further consistent with a recent study (Terézhalmy *et al.,* 2008) in which efficient plaque removal was achieved by participants brushing between 1-5 minutes with different types of manual brushes. According to Singh and Tuli (2013), the duration could be confounded by the brushing technique employed. In addition it may be affected by the presence of tooth wear lesions particularly if associated with dentine hypersensitivity. The most important factor to be considered may be the degree of force applied which should be gentle to avoid gum damage. Also encouraging was the relatively high frequency of dentists (54.5%) who changed their tooth brush within 3 months. This is line with the recommendations of the American Dental Association (2014) to change tooth brushes 3-4 months or sooner if bristles are frayed. According to the American Dental Association (2014), toothbrushes are likely to wear out more rapidly depending on factors unique to each individual and should be stored possibly in an upright position to allow the toothbrush to air-dry before the next use to discourage the growth of microorganisms on the tooth brush.

The use of dental floss and other interdental cleaning agents have been advocated in modern dentistry as an important part of dental hygiene and is required daily to remove plaque from between the teeth and under the gingival line (Biesbrock et al., 2006). The study observed that although interdental floss was used by 59.1% of the dentists, which is considerably higher than studies in Nigeria reporting 7.3% among dental students (Folayan et al., 2013) and 8.5% among school teachers (Ehizele et al., 2011). Overall, only 14.8% had a habit of using interdental floss at least once daily for the removal of interdental plaque. Others utilized it occasionally, for the removal of plaque and food debris from specific areas of the teeth following meals. The study by Madan et al. (2014) however reported a higher percentage of 22% of Indian dentists who used dental floss at least once daily. The difference could be attributed to the greater level of awareness and self-motivation attributed to the dentists in the Indian study. According to Madan *et al.*(2014), there was a strong possibility of non-daily floss users not recommending dental floss routinely to their patients, as was observed by 36.1% of dentists in their academic institutes who did not prescribe dental floss routinely for interdental plaque control to patients. In the present study, female dentists were found to use interdental floss more than male dentists while respondents who had worked for one year or less in the hospital indicated they used interdental floss more than those who had worked for one or more years. This higher preference for interdental floss among female dentists was

also observed among Indian (Madan *et al.*, 2014) and Japanese dentists (Nakamura *et al.*, 2011). This could stem from the general belief that women tend to pay greater attention to their health than men. Likewise, the higher use of interdental floss by dentists who had worked for one year and less within the hospital could be as a result of their being more involved in patients' oral hygiene instructions following dental treatment.

Concerning dental attendance, a great percentage (88.6%) had received scaling and polishing, which is not unexpected from these group of highly trained professionals. This treatment is the most basic professional treatment to ensure good oral hygiene. Although, about a quarter of the dentists indicated their frequency of scaling and polishing to be on a six monthly basis, a higher percentage (38.6%) [Table 3] had actually received scaling and polishing therapy in the last six months preceding this study. Scaling and polishing coincides with dental check-ups in most scenarios. A study among Indian dentists found 37.5% of them going for dental check-ups only when they had a problem (Madan *et al.*, 2014). This is the most frequent reason for dental attendance from some studies among other groups of Nigerians (Okunseri *et al.*, 2004; Braimoh and Ofili, 2013; Umeizudike et al., 2014), although the frequency in the present study is lower than the findings of these other studies.

It is interesting to note that 65.9% of the dentists believed that they were giving optimum attention to their periodontal health. This is important with respect to the report by the American Academy of Periodontology (2014) on the association of inflammatory periodontal disease with some chronic medical conditions. Hence, the treatment or better still the prevention of periodontal disease would be of immense benefit to the overall general health of a person. This ought to be a form of self-motivation for dentists to maintain optimum periodontal health. There were significantly higher proportion of younger dentists who had received scaling and polishing within 6 months. This might simply be attributed to their greater self-awareness regarding personal aesthetics and perhaps their high motivation since they just graduated from the dental school and may possibly have more time than their senior colleagues who may have more challenges such as marital commitments. Further analysis in this study revealed that only 47.7% utilized the dental clinic within the hospital for scaling and polishing which was quite surprising, the reason proffered by most being not having time. This again buttresses the low importance attached to their oral health, despite the perception by many of the dentists that they gave optimum attention to this aspect of their health. It is important that dentists who are role models for good oral health should maintain such health for themselves.

One of the limitations of this study is the small dentist population studied, which may not be a fair representation of this group of dental professionals within this teaching hospital. Despite this, the study has provided some useful information on oral hygiene practices of these dental professionals which should prompt other category of dentists to enable them re-examine their own practices in the light of best practices, so that they can be effective advocates of their own profession.

CONCLUSION

The findings of this study have shown that the oral hygiene practices of this group of dentists were less than optimal. Their position within the dental team makes them prominent role models.

RECOMMENDATIONS

There is a need for reappraisal and improvement of the practices of House officers and residents in the dental profession at the Lagos University Teaching Hospital during both departmental and Faculty seminars and so that they can truly reflect what they promote and derive the benefits thereof. Future studies should target larger groups of dentists and other dental professionals in both private and public health sectors.

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Table 1: Socio-demographic characteristics of respondents

Variable	n (%)
Age group (years)	
21-25	20 (22.7)
26-30	40 (45.5)
31-35	22 (25.0)
36-40	6 (6.8)
Total	88 (100)
Gender	
Male	46 (52.3)
Female	42 (47.7)
Total	88 (100)
Marital Status	
Single	68 (77.3)
Married	20 (22.7)
Total	88 (100)
Ethnicity	
Yoruba	65 (73.9)
Igbo	15 (17.0)
Others (Edo, Isan, Urhobo)	8 (9.1)
Total	88 (100)
Years post-qualification (years)	
≤ 5	70 (79.5)
>5	18 (20.5)
Total	88 (100)
Duration of work at LUTH(years)	
≤1	61 (69.3)
>1	27 (30.7)
Total	88 (100)

Table 2: Oral Self-care practices of respondents

Variable	n (%)
Tooth cleaning aid used	
Toothbrush & fluoride tooth paste	80 (90.9)
Toothbrush/ fluoride tooth paste & chewing stick	8 (9.1)
Total	88 (100)
Tooth brushing frequency	
Once daily	48 (54.5)
Twice or more daily	40 (45.5)
Total	88 (100)
Tooth brushing technique	
Roll	49 (55.7)
Bass	11 (12.5)
Scrub	2 (2.3)
Vertical	26 (29.5)
Total	88 (100)
Type of toothbrush used	
Medium	87 (98.9)
Soft	1 (1.1)
Total	88 (100)
Duration of tooth brushing	
<3 minutes	24 (27.3)
3-5 minutes	60 (68.2)
>5 minutes	4 (4.5)
Total	88 (100)
Frequency of changing tooth brush	
≤ 3 months	48 (54.5)
> 3 months	40 (45.5)
Total	88 (100)
Use of Interdental floss	
Yes	52 (59.1)
No	36 (40.9)
Total	88 (100)
Regular use of Interdental floss	
At least once daily	13 (14.8)
Less than once daily	39 (44.3)
Never	36 (40.9)
Total	88 (100)

Table 3: Dental attendance for Scaling and Polishing among respondents

Variable	n (%)
History of past Scaling and Polishing	
Yes	78 (88.6)
No	10 (11.4)
Total	88 (100)
Frequency of Scaling and Polishing	
Once in 6 months	21 (23.9)
Once in 12 months	23 (26.1)
When respondent perceives it as a need (e.g. gum bleeding)	33 (37.5)
Along with other dental treatment	1 (1.1)
Total	78 (100)
Last Scaling and Polishing done (n=78)	
≤ 6 months ago	34 (38.6)
> 6 months ago	44 (50.0)
Never	10 (11.4)
Total	88 (100)
Attendance at LUTH dental clinic for Scaling and Polishing	
Yes	42 (47.7)
No	46 (52.3)
Total	88 (100)

Table 4: Comparison of preventive oral hygiene practices with age and gender of respondents

Variable	Total	Age (years)		p value	Gender		p value
		21-30	31-40		Male	Female	
Brushing frequency							
Once daily	48	29	19 (39.6)	0.138	26 (54.2)	22 (45.8)	0.861
Twice or more daily	(54.5)	(60.4)	9 (22.5)		20 (50.0)	20 (50.0)	
	40	31					
	(45.5)	(77.5)					
Use of interdental floss							
Yes	52	35	17 (32.7)	0.983	20 (38.5)	32 (61.5)	0.004*
No	(59.1)	(67.3)	11 (30.6)		26 (72.2)	10 (27.8)	
	36	25					
	(40.9)	(69.4)					
Regular use of interdental floss							
At least once daily	13	11	2 (15.4)	0.145**	5 (38.5)	8 (61.5)	0.436
Less than once daily/Never	(14.8)	(84.6)	26 (34.7)		41 (54.7)	34 (45.3)	
	75	49					
	(85.2)	(65.3)					
Scaling and polishing							
Within last 6 months	34	28	6 (17.6)	0.042*	17 (50.0)	17 (50.0)	0.905
More than 6 months/Never	(38.6)	(82.4)	22 (40.7)		29 (53.7)	25 (46.3)	
	54	32					
	(61.4)	(59.3)					

Chi square tests *statistically significant ** Fisher exact

Table 5: Comparison of oral hygiene practices of respondents with number of years post-qualification and work experience at LUTH

Variable	Total	Post qualification (years)		p value	Work experience at LUTH (years)		p value
		≤ 5	>5		≤ 1	>1	
Brushing frequency							
Once daily	48 (54.5)	37 (77.1)	11 (22.9)	0.714	32 (66.7)	16 (33.3)	0.720
Twice or more daily	40 (45.5)	33 (82.5)	7 (17.5)		29 (72.5)	11 (27.5)	
Use of interdental floss							
Yes	52 (59.1)	38 (73.1)	14 (26.9)	0.059*	31 (59.6)	21 (40.4)	0.033*
No	36 (40.9)	32 (88.9)	4 (11.1)	*	30 (83.3)	6 (16.7)	
Regular use of interdental floss							
At least once daily	13 (14.8)	10 (76.9)	3 (23.1)	0.525*	8 (61.5)	5 (38.5)	0.739
Less than once daily/Never	75 (85.2)	60 (80.0)	15 (20.0)	*	53 (70.7)	22 (29.3)	
Scaling and polishing							
Within last 6 months	34 (38.6)	29 (85.3)	5 (14.7)	0.430	26 (76.5)	8 (23.5)	0.359
More than 6 months/Never	54 (61.4)	41 (75.9)	13 (24.1)		35 (64.8)	19 (35.2)	

Chi square tests *statistically significant ** Fisher exact

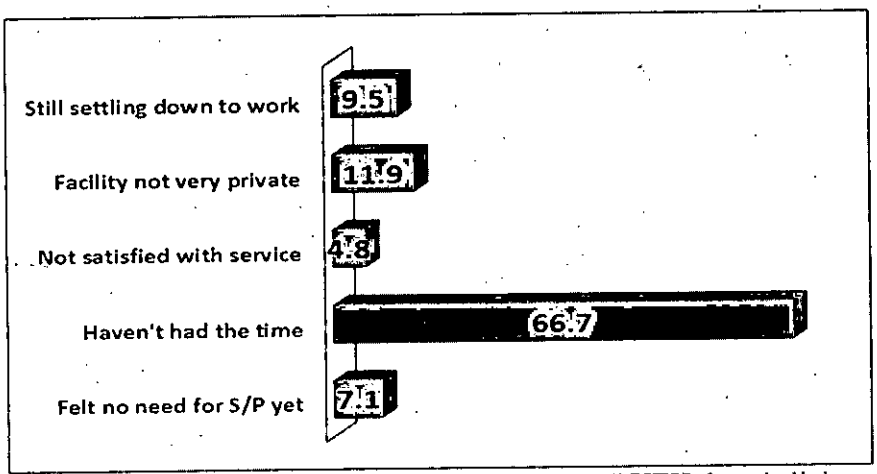

Fig. 1: Respondents' reasons for non-attendance at LUTH dental clinic