

## Utilization of Oral Care Services and Oral Hygiene Practices of Medical Doctors in a Tertiary Hospital in Rivers State, Nigeria

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### Abstract

The medical professionals are more likely to encounter vulnerable populations than dental professionals, because patients with dental issues often visit the physicians first. Hence, it is imperative for the medical doctors to maintain good self-oral care practices. The objective of this study, therefore, was to evaluate the oral self-care practices and dental service utilization attendance of medical doctors in different specialities of the University of Port Harcourt Teaching Hospital (UPTH), Port Harcourt, Rivers State.

This was a descriptive, cross-sectional study conducted among medical practitioners in UPTH. Ethical approval was obtained from the Health Research and Ethics Committee of the Institution, followed by participants' consent before commencing the study. Data was collected over 3 months period using semi-structured, self-administered questionnaires. Statistical analysis was done using the Statistical Package for Social Sciences (SPSS) version 25.0 (IBM SPSS Inc. Chicago Illinois). Statistical significance was considered at  $p < 0.05$  at 95% confidence limits.

There were 154 (92[59.7%] males and 62[40.3%] females) participants, with a M: F of 1.48:1. There were 71 (46.1%) registrars, 28 (18.2%) senior registrars and 55 (35.7%) consultants, recruited from the various departments of medicine and surgery. Eighty-two (53.2%) participants brush their teeth twice daily, 140(90.9%) used toothbrushes as cleaning aids, 81(52.6%) brush using vertical and horizontal techniques. One hundred and nineteen participants (77%) visited the dental clinic previously; more males visited the dental clinic between 6-12 months compared to females ( $p=0.361$ ). More consultants visited the dental clinic less than 6 months ago, while more registrar visited 6-12 months ago ( $p=0.028$ ). Considering the reasons for the dental visits, half of the registrars, 5(50.0%) visited for routine dental check-up. More of the consultants 17(37.8%) and the registrars 17(37.8%) visited for scaling and polishing. ( $p=0.822$ ).

**Keywords:** Medical doctors, Oral hygiene practices, Oral care services, Utilization

### Introduction

Oral disease has become one of the public health challenges globally, it has great impact on the social life of an individual.<sup>1</sup> Oral diseases may cause functional impairment due pain, affecting the quality of life and overall productivity of an individual,<sup>2</sup> it causes daily performance disordering, loss of working hours and other social activities. Good hygiene has been reported to greatly prevent oral disease.<sup>3</sup> The oral health

status of the population is evaluated by the oral hygiene levels and prevalence of the dental caries and periodontal diseases.<sup>4</sup> Dental caries and periodontal disease are caused by poor oral hygiene and can reduce individual's quality of life.<sup>5</sup> Hence, it is essential to maintain good oral hygiene, to reduce their prevalences.<sup>6</sup> Oral care practices such as toothbrushing with fluoride toothpaste, dental flossing, and oral care utilization twice every year, are recommended standards to keep up good oral health.<sup>7</sup>

Tooth brushing has been recommended as one of the modern methods of oral hygiene maintenance.<sup>8</sup> Use of appropriate toothbrush, as well as the proper tooth brushing method are effective for plaque removal.<sup>9</sup> Tooth brushing have been found to be adequate at cleaning buccal and lingual surfaces than interproximal/ interdental surfaces. Interdental sites

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are areas of high plaque biofilm formation and accumulation.<sup>10</sup> Generally, Interproximal areas are sites for periodontal disease compared to the facial surfaces.<sup>11</sup> Therefore, use of interproximal cleaning aids cannot be over-emphasized. Examples of interproximal cleaning aids are dental floss, interdental brushes, or rubber-tipped water flossers (irrigators), wooden sticks.<sup>12</sup>

Dental service utilization is defined as the number of oral care visit by an individual over a period of 12 months.<sup>13</sup> It is expressed in terms of dental care visits made and treatment done over a particular period.<sup>13</sup> The medical professionals are more likely to encounter vulnerable populations than dental professionals, because patients with dental issues often visit the physicians first.<sup>14,15</sup> Furthermore, the dentist: population ratio is grossly deficient in developing countries like Nigeria. It was reported in 2017 that the dentist per 10,000 population was approximately 0.21.<sup>16</sup> Hence, some patients may be educated on oral health by physicians.<sup>14</sup> The capacity and the willingness of the physicians to advice and inspire patients on lifestyle behaviours is highly dependent on their personal practices. Physicians serve as an exemplar of healthy behaviour in the society, as they are well informed about health care choices and their effects. Hence, it is imperative that medical doctors should have impressive oral self-care practices. There is limited data on oral self-care practices, dental attendance among medical doctors in UPTH. This study was therefore designed to evaluate the oral self-care practices and dental attendance of medical doctors in different specialities of the University of Port Harcourt Teaching Hospital (UPTH).

## Materials and Methods

This was a descriptive, cross-sectional study conducted among medical practitioners of the University of Port Harcourt Teaching Hospital (UPTH), Port Harcourt, Rivers state. We got ethical approval from the Health Research and Ethics Committee of the Institution (UPTH/ADM/90/S.II/VOL.XI/1033), the participants also gave consent before commencing the study. The study population consists of medical practitioners from various specialties in UPTH. A purposive non-probability sampling technique was utilized to recruit subjects. A total of 200 questionnaires were distributed but only 154 were retrieved and properly filled, given a percentage response of 77%.

Data was collected over 3 months period using semi-structured, self-administered questionnaires adapted from other studies encountered during the literature review. The questionnaire had two sections. Section A included information on socio-demography (age, gender, marital status, ethnicity) and work-related characteristics (clinical posting/units, year of practice,

cadre i.e., registrar, senior registrar and consultants). Section B included information on the oral hygiene practices and dental utilization of the participants.

Statistical analysis was done using the statistical package for social sciences, SPSS version 25.0 (IBM SPSS Inc. Chicago Illinois). Categorical variables were expressed as frequencies with accompanying percentages. Differences between groups were compared using the Chi-square tests for categorical variables. Statistical significance was considered at  $p < 0.05$  at 95% confidence limits.

## Results

### Sociodemographic of participants

This study consists of 154 participants, with 92 (59.7%) males and 62 (40.3%) females, with a M: F of 1.48:1. The mean age was  $38.55 \pm 10.20$  years, age range was 25 -68 years. The participants were Registrars, Senior registrars and Consultants recruited from the various departments of Medicine; Obstetrics and Gynaecology, Paediatrics, Pathology, Public Health, Radiology and Surgery, (Table 1).

### Oral hygiene practices of participants

About 70 (45.5%) of the participants brush their teeth once daily, 82 (53.2%) brush their teeth twice daily, while 2 (1.3%) brush either once or twice. Majority of the participants, 140 (90.9%) used toothbrushes as cleaning aids, while 14 (9.1%) used both toothbrushes and chewing sticks, none of the participants used chewing stick alone. Higher proportion of the participants; 107 (69.5%) used medium textured toothbrushes, while 4 (2.6%) do not know the type of toothbrushes they used. Concerning the technique of toothbrushing, 58 (37.7%) of the participants used the vertical technique of toothbrushing, while 81 (52.6%) used both vertical and horizontal techniques. 129 (83.8%) claimed they clean in between their teeth, while 25 (16.2%) do not clean in between their teeth. Among those that clean in between their teeth, 53 (41.1%) used toothpick, 36 (27.9%) used dental floss, while 40 (31.0%) used both toothpick and dental floss. This is as shown on Table 2.

### Utilization of dental services by participants based on respondents, gender and cadre

Majority of the participants, 119 (77.3%) had previously visited the dental clinic, while 35 (22.7%) had not visited the dental clinic. Among those who visited the dental clinic; 36 (23.4%) visited less than 6 months ago, while 83 (53.9%) visited the dental clinic 6-12 months ago. More participants, 45 (37.8%) visited the dental clinic for scaling and polishing, 24 (20.2%) visited for toothache, 19 (16.0%) visited for extraction, while 4 (3.4%) visited the dental clinic for all the treatment. (Table 3)

Based on gender, more male participants, 69 (58.0%)

Table 1: Sociodemographic of Participants

| Sociodemographic Variables |                  | Frequency | %     |
|----------------------------|------------------|-----------|-------|
| Age Group                  | 20-29            | 22        | 14.3  |
|                            | 30-39            | 73        | 47.4  |
|                            | 40-49            | 36        | 23.4  |
|                            | 50-59            | 13        | 8.4   |
|                            | 60-69            | 10        | 6.5   |
| Gender                     | Male             | 92        | 59.7  |
|                            | Female           | 62        | 40.3  |
| Cadre                      | Registrar        | 71        | 46.1  |
|                            | Senior Registrar | 28        | 18.2  |
|                            | Consultant       | 55        | 35.7  |
| Specialty                  | Medicine         | 45        | 29.2  |
|                            | O and G          | 18        | 11.7  |
|                            | Paediatrics      | 7         | 4.5   |
|                            | Pathology        | 13        | 8.4   |
|                            | Public Health    | 19        | 12.3  |
|                            | Radiology        | 7         | 4.5   |
|                            | Surgery          | 45        | 29.2  |
|                            | Total            | 154       | 100.0 |

Table 2: Oral hygiene practices of participants

| Variables                                     |                    | Frequency (%)     |
|---|--------------------|-------------------|
| Frequency of brushing your teeth              | Once               | 70(45.5)          |
|   | Twice              | 82(53.2)          |
|   | Once or twice      | 2(1.3)            |
| Cleaning aid used                             | Toothbrush         | 140(90.9)         |
|   | Chewing stick      | 0(0.0)            |
|   | Both               | 14(9.1)           |
| Type of toothbrush used                       | Soft               | 24(15.6)          |
|   | Medium             | 107(69.5)         |
|   | Hard               | 19(12.3)          |
|   | Don't know         | 4(2.6)            |
| Technique of toothbrushing                    | Vertical           | 58(37.7)          |
|   | Horizontal (scrub) | 15(9.7)           |
|   | Both               | 81(52.6)          |
| Do you clean in-between your teeth?           | Yes                | 129(83.8)         |
|   | No                 | 25(16.2)          |
| If yes, type of interdental cleaning aid used | Toothpick          | 53(41.1)          |
|   | Dental floss       | 36(27.9)          |
|   | Both               | 40(31.0)          |
| <b>Total</b>                                  |                    | <b>154(100.0)</b> |

had previously visited the dental clinic compared to females, 50 (42.0%). Regarding the timing of the last dental visit, half of both males and females visited the dental clinic in the last 6 months, while more males, 51 (61.4%) reported visiting the dental clinic between 6–12 months ago.

More males visited the dental clinic for routine

dental check-up, toothache, scaling and polishing and extractions, compared to the females. These findings, however, are not statistically significant (Table 4).

Based on cadre, the consultants, 49 (41.2%) and the registrars, 48 (40.3%) visited the dental clinic previously compared with the senior registrar, 22 (18.5%). This finding is statistically significant

Table 3: Dental service utilization by participants

| Variables                     |                          | Frequency (%) |
|-------------------------------|--------------------------|---------------|
| Ever visited the dentist      | Yes                      | 119(77.3)     |
|                               | No                       | 35(22.7)      |
| Last visit to dentist         | Never                    | 35(22.7)      |
|                               | <6 months                | 36(23.4)      |
|                               | 6-12 months              | 83(53.9)      |
| Reasons for last dental visit | Pre-employment screening | 2(1.7)        |
|                               | Routine check-up         | 12(8.4)       |
|                               | Toothache                | 24(20.2)      |
|                               | Scaling & polishing      | 45(37.8)      |
|                               | Filling                  | 12(10.1)      |
|                               | Extraction               | 19(16.0)      |
|                               | Others (e.g., Crown)     | 3(2.5)        |
| All                           | 4(3.4)                   |               |

Table 4: Dental service utilization of participants based on gender

| Variables                |                          | Gender        |                 | p value |
|--------------------------|--------------------------|---------------|-----------------|---------|
|                          |                          | Male<br>n (%) | Female<br>n (%) |         |
| Ever visited the dentist | Yes                      | 69(58.0)      | 50(42.0)        | 0.412   |
|                          | No                       | 23(65.7)      | 12(34.3)        |         |
| Last visit to dentist    | Never                    | 23(65.7)      | 12(34.3)        | 0.361   |
|                          | < 6months                | 18(50.0)      | 18(50.0)        |         |
|                          | 6-12 months              | 51(61.4)      | 32(38.6)        |         |
| Reasons for dental visit | Pre-employment screening | 2(100.0)      | 0(0.0)          | 0.821   |
|                          | Routine check-up         | 6(60.0)       | 4(40.0)         |         |
|                          | Toothache                | 17(70.8)      | 7(29.2)         |         |
|                          | Scaling & polishing      | 25(55.6)      | 20(44.4)        |         |
|                          | Filling                  | 6(50.0)       | 6(60.0)         |         |
|                          | Extractions              | 10(52.6)      | 9(47.4)         |         |
|                          | Others (e.g., Crowns)    | 2(66.7)       | 1(33.1)         |         |
|                          | All                      | 2(50.0)       | 2(50.0)         |         |

( $p=0.017$ ). Among those who visited the dental clinic previously; more of the consultants, 18 (50.0) visited less than 6 months ago, while more of the registrar visited within 6-12 months ago. This finding is statistically significant ( $p = 0.028$ ). Regarding the reasons for the dental visits, half of the registrars, 5 (50.0%) visited for routine dental check-up. More of the consultants, 17 (37.8%) and the registrars, 17 (37.8%) visited for scaling and polishing, while more of the consultants, 10 (52.6%) visited for extractions, compared to other cadres. This finding is however, not statistically significant ( $p=0.822$ ), (Table 5).

## Discussion

In this study, we assess the oral hygiene practices and utilization of oral care services by medical doctors, as the medical professionals are more likely to encounter vulnerable populations than dental professionals, because patients with dental issues often

visit the physicians first.<sup>14,15</sup> Hence, it is imperative to assess the oral hygiene practices and the utilization of oral care services by the medical doctors.

In this study, just a little above half of the participants brush their teeth twice daily, this is not encouraging, as the American Dental Association advocates that the teeth should be brushed twice daily for about two minutes with a fluoridated toothpaste to achieve notable reduction in the amount of plaque biofilm accumulation and improved oral hygiene.<sup>17</sup> Majority of the participants used toothbrush and toothpaste for cleansing their teeth. This is commendable; however, it can be improved so that everyone uses toothbrush and toothpaste. A few of the participants utilize both toothbrush/toothpaste and chewing stick. this finding is in tandem with a previous study conducted by Aliyu et al,<sup>18</sup> among doctors in the northern part of Nigeria, also by Iwuala et al,<sup>7</sup> conducted among resident doctors in the south-west

Table 5: Dental Service Utilization of Participants by Cadre

| Variables                |                       | Cadre              |                              |                     | p value       |
|--------------------------|-----------------------|--------------------|------------------------------|---------------------|---------------|
|                          |                       | Registrars<br>n(%) | Senior<br>registrars<br>n(%) | Consultants<br>n(%) |               |
| Ever visited the dentist | Yes                   | 48(40.3)           | 22(18.5)                     | 49(41.2)            | <b>0.017*</b> |
|                          | No                    | 23(65.7)           | 6(17.1)                      | 6(17.1)             |               |
| Last visit to dentist    | Never                 | 23(65.7)           | 6(17.1)                      | 6(17.1)             | <b>0.028*</b> |
|                          | <6 months             | 14(38.9)           | 4(11.1)                      | 18(50.0)            |               |
| Reasons for dental visit | 6-12months            | 34(41.0)           | 18(21.7)                     | 31(37.3)            | 0.822         |
|                          | Pre-employment        | 2(100.0)           | 0(0.0)                       | 0(0.0)              |               |
|                          | Routine check-up      | 5(50.0)            | 1(10.0)                      | 4(40.0)             |               |
|                          | Toothache             | 11(45.8)           | 4(16.7)                      | 9(37.5)             |               |
|                          | Scaling & polishing   | 17(37.8)           | 11(24.4)                     | 17(37.8)            |               |
|                          | Filling               | 4(33.3)            | 2(16.7)                      | 6(50.0)             |               |
|                          | Extraction            | 7(36.8)            | 2(10.5)                      | 10(52.6)            |               |
|                          | Others (e.g., crowns) | 0(0.0)             | 1(33.3)                      | 2(66.7)             |               |
|                          | All                   | 2(50.0)            | 1(25.0)                      | 1(25.0)             |               |

\*- significant

part of Nigeria. Younus et al<sup>19</sup> and Baseer et al<sup>20</sup> also reported the use of chewing stick among health professionals. Some participants who used chewing stick in combination to toothbrush/toothpaste as cleansing aids, may have done so because chewing stick with its extract is believed to be therapeutic against gingival diseases, increase saliva flow and inhibits formation of plaque biofilm.<sup>21</sup> Microbial plaque control can be reduced by effective toothbrushing and interdental cleaning.<sup>22</sup> A good percentage of the participant used medium textured toothbrushes; this is impressive, however, some of the participants used hard toothbrushes, while few do not even know the type of toothbrush that they use, this really is not acceptable especially among medical doctors who sometimes might be the first point of contact for some patients with dental pain and visit the hospital for treatment or advice. This shows that the medical doctors need to be enlightened about basic oral hygiene practices. The hard-textured toothbrush has been linked with gingival recession when compared with soft-textured toothbrush.<sup>23</sup> The hardness of toothbrush bristles has been reported to cause gingival inflammation, dentin sensitivity, trauma to soft tissues (acute trauma), gingival recession, root caries and aesthetic challenges.<sup>24</sup> Gingival recession caused by toothbrushing has been shown to be aggravated by the force applied during tooth brushing, the orientation and number of toothbrushing movements, and the quality of the bristles.<sup>25</sup> Tooth brushes with medium or soft nylon bristles, a small head and round bristle heads have been associated with less trauma to the epithelial tissues. Hence, periodontists recommend these type of tooth brushes.<sup>26</sup>

There are various brushing techniques such as Roll, fones, horizontal scrub, charters, stillman, bass, the

modified bass technique (MBT), Watanabe's toothpick technique. No particular toothbrushing technique have been reported to completely remove plaque.<sup>27</sup> However, modified bass/bass method has been reported in a systematic review and meta-analysis study conducted in 2018, to be efficient in reducing plaque compared to other toothbrushing methods.<sup>28</sup> Concerning the brushing technique, some of the participants used the vertical method, very few used the horizontal method, while about half of the participants used both (horizontal and vertical technique). This finding is in tandem with a study by Poyato-Ferrera et al in 2003;<sup>29</sup> he estimated that over 90% of people utilize their "personal tooth-brushing method," which included the "scrub" technique in which vigorous horizontal, vertical, and/or circular movements are used. Although this method removes plaque from smooth outer and inner surfaces of the teeth, it is considered detrimental to the oral health as it can encourage gingival recession and tooth abrasion.<sup>29</sup> In this study, a large percentage of the participants utilized interdental cleaning aids; about half of them used toothpicks as interdental cleaning aid, this finding is in tandem with the study conducted among medical doctors in North-west Nigeria, by Aliyu et al.<sup>18</sup> This reason for this could be due to the availability and ease of use of toothpicks compared to dental floss.<sup>30</sup>

Most of the participants in this study utilized the dental services in the preceding 12 months, many participants visited the dental clinic for scaling and polishing, toothache and extractions, while only a handful of the participants attended the dental clinic for routine check-up. This is not encouraging especially among the medical doctors, which shows they are ignorant about the importance of dental check-up. A number of medical conditions have been linked to

periodontal diseases, which can be detected during routine dental check-up, also the medical doctors are expected to inform their patients about the oral-systemic association. This confirms that most individuals in the developing countries visit the dental clinic mainly for treatments rather than for regular dental check-up, as reported by Azodo et al.<sup>31</sup> A few of the participants had never visited the dental clinic before, the reasons for the non-utilization were not taken into cognizant in this study. Considering dental utilization and gender, interestingly, the male participants in this study, utilized dental services more than the female participants. This finding is in tandem with the finding from the study by Etetafia et al,<sup>32</sup> conducted among medical practitioners in Delta State, Nigeria. The finding is however, in contrast to the general knowledge that women seek health care more than men.<sup>33</sup> The reason for this finding could be that the study was conducted among educated individuals. Considering dental service utilization and cadre, the registrars and consultants in this study utilized the dental care services more than the senior registrars. The reason for this could be due to the increased interactions between the dental and medical consultants, also the registrars compared to the senior registrars. However, a small number of each cadre visited the dental clinic for routine check-up. The reason for this finding could be that the level of dental care awareness is limited among the general populace, as well as among the medical doctors, as reported by Oyetola et al.<sup>34</sup> It is therefore recommended that dental awareness/education should be increased among the populace, starting with the hospital environment.

### Conclusion

Most participants brushed their teeth once or twice daily using both vertical and horizontal brushing techniques. Although most of the participants visited the dental clinic previously, only few visited for routine dental check-up. More male visited the dental clinic in the last 12 months.

### Acknowledgment

We appreciate the medical doctors who participated in this study

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