

Oral Health Practices and Status of Workers in a Tertiary Institution Attending an Oral Health Outreach Programme in Ibadan Nigeria

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ABSTRACT

Objective: To assess the oral health practices and status of workers attending an oral health outreach programme in a tertiary institution, in Ibadan, Nigeria.

Methods: A cross-sectional study was conducted among attendees of an oral-health outreach programme organized for the administrative staffs of the College of Medicine, University of Ibadan. Information on socio-demography, oral-health practices and self-perceived oral-health states were obtained using a self-administered questionnaire. Oral-hygiene status was assessed using Oral Hygiene Index (OHI), treatment-need assessed using the Community Periodontal Index of Treatment Need (CPITN) and caries level determined using WHO guidelines. Data were analyzed and presented as tables and figures.

Results: Mean age of study participants was 41.4(±8.1) years, Male: Female ratio was 2:3. Thirty (38.0%) participants had ever visited the dentist, 18(60%) of whom did so >5 years prior to data collection. Reasons for dental visit included: pain relief in 22(73%) cases, scaling and polishing in 7(22%), and orthodontic reason in 1(5%) case. All participants used toothbrush for mouth cleaning, and 4(5.1%) participants combined it with chewing-sticks. Mouth cleaning frequency were: "once daily" in 57(72.1%) of them, "twice daily" in 18(22.8%) and "occasionally" in 4(5.1%) of participants. Interdental teeth cleaning materials included: wooden toothpick 58(73.4%), plastic toothpick 10(12.6%), dental-floss 8(10.1%), broomstick 5(6.3%) and pins 3(3.7%). Fifty (63.3%) respondents perceived their oral-health status as "good", 21(26.6%) as "average", and 8(10.1%) were "not sure". Oral examination revealed poor oral hygiene in 28(35.4%), moderate/severe gingivitis in 24(30.4%) and caries in 8(10.1%) cases. Treatment needs included: professional cleaning in 64(81.0%) and oral-hygiene instructions and motivations in all participants.

Conclusion: Most participants visited dental clinics for pain, perceived their oral health to be good and required professional dental treatment.

Keywords: Oral health, practices, status, tertiary, workers, attending, dental outreach, Ibadan

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INTRODUCTION

Oral health is an essential component of overall health and impacts significantly on the general well-being of every individual.^{1,2} Although oral diseases are highly preventable, yet, they persist, affecting many adult populations.³ Poor oral health can manifest in varying degrees of health morbidities as well as mortality in severe cases. In the workforce, the adverse effects of poor oral health can result in restricted participation in work leading to manpower losses in hours, missed days at work, reduced productivity, increased family health spending and a general reduction in the quality of life.⁴⁻⁶ Dental caries and periodontal (gum) disease are the commonest oral diseases affecting man. Periodontal disease, in particular, can worsen the effect of or frustrate the management of many systemic diseases or conditions, such as heart disease, diabetes and respiratory diseases among sufferers.^{7,8} Maintaining good oral health status is key to overall well-being and requires regular brushing and flossing as well as utilization of preventive dental health care services.^{9,10} The practices an individual adopts to maintaining his oral health are largely influenced by his oral health knowledge, beliefs and attitudes and this is usually manifested in the oral health status.^{9,11-13} Similarly, an individual's perception of his or her oral health status is considered a significant measure in dental care as it may provide a better understanding of his or her dental health care practices and status of oral health.¹³⁻¹⁵

Tertiary institutions are places of higher education beyond the secondary school level where educational information are frequently exchanged.^{16,17} The workplace is where the employees who are usually adults spends the most time of their wakefulness. Such environment presents a unique opportunity to positively influence individual's health and well-being. Offering workers oral health and well-being information in work places can create a healthy and productive work environment.^{18,19} Such healthy initiatives organized occasionally for staff can potentially reduce staff sickness, promote staff happiness, and increase work productivity. These may be achieved through the provision of information required to prevent oral diseases, maintain a healthy oral health and improve general health and wellbeing.¹⁸⁻²⁰ As such members of staff feel valued, satisfied, and open to talking about their oral health before it becomes too late to affect productivity thus benefitting both the organization and the employees.

Therefore, in order to have a viable oral health intervention plan, towards promoting oral health and well-being initiative among the staffs, it is imperative to identify areas of needs in their oral health status and dental practices to serve as guides. Such information which was largely unknown among the group, formed the basis for this research.

MATERIALS AND METHODS

This was a cross-sectional study carried out among the administrative staff members of the College of Medicine, University of Ibadan (COM-UI), Nigeria in June 2019. The outreach programme was a part of COM-UI management's series of ongoing initiatives towards improving the health and well-being of its staff. In this outreach episode, the dental health was in focus. COM-UI has two major arms: one, located within the University of Ibadan campus and the other, about 5 kms from the main university, within the structure of the University College Hospital (UCH). All administrative staff members of the College were invited for the outreach. Repeated messages were sent to concerned staff through the information technology system of the College and adverts on all the notice boards in the College. Staff members particularly those whose operational base was within the UCH campus, the venue of the outreach programme, were expected at the dental outreach event. All (87) attendees of the outreach were approached, and 79 of them agreed to participate in the research which involved oral examination. Thus, giving a response rate of 91%. The research conduct was carried out within the college auditorium and in the day-time. Information on socio-demography, oral-health practices and self-perceived oral-health status were obtained using a self-administered questionnaire. Oral examination was conducted for the respondents immediately after completing the questionnaire. The participants were comfortably seated and the sitting position allowed for sunlight from the window to be directed into their mouth, while at the same time allowing for privacy. Oral examinations were carried out by five qualified dentists using Community Periodontal Index of Treatment Need (CPITN) probes and dental mirrors, under natural light. Oral-hygiene status was determined using the simplified oral hygiene index by Greene and Vermillion²¹, which categorizes the respondents into "good", "fair" and "poor" oral hygiene (OH). The gingival health was assessed using the gingival index by Löe and Silness.²² This index categorizes individuals into "normal gingivae,"

"mild," "moderate," and "severe" gingival inflammation. The periodontal health and treatment needs assessment were determined using the Community Periodontal Index of Treatment Need (CPITN) by Ainamo et al.²³ The index separates the individuals into the type of treatments required. These include: "no need for treatment", "oral hygiene instructions (OHI)", "OHI, professional cleaning, removal of plaque retentive factors" and "Complex treatment to remove infected tissue"^{23,24}. The percentage of carious, missing and filled teeth were also assessed. Participants' caries experience was determined using the DMFT (Decayed-Missing-Filled-Teeth) index to obtain a score for each participant in line with World Health Organization's (WHO) guideline^{25,26}, and the average score of study participants recorded as the mean DMFT.²⁵

Data were analyzed using the Statistical Package for Social Sciences (SPSS) version 25. Descriptive analysis was performed for all the variables, and the mean scores of the participants' age, and DMFT score presented. Frequencies of the socio-demographic variables and the outcome variables – perceived oral health status, oral hygiene index, gingival index and the periodontal treatment need as well as carious, missing and filled teeth were presented using tables and figures. Factors associated with the outcome variables were analyzed using Pearson's Chi-square test, with the level of significance set at $p < 0.05$.

RESULTS

A total of 79 workers participated in the study. Forty-six (58.2%) were females. The mean ($\pm$ SD) age of the study participants was 41.4($\pm$ 8.1) years (Table 1)

Table 1: Socio-demographic characteristics of workers of a tertiary institution

Characteristics	Frequency (79)	Percent (%)
Age (years)		
≤ 40	37	46.8
> 40	42	53.2
Gender		
Female	46	58.2
Male	33	41.8
Marital Status		
Single/divorced	10	12.7
Married	69	87.3
Educational level		
< Tertiary	12	15.2
≥ Tertiary	67	84.8
Religion		
Christian	47	59.5
Islam	32	40.5
Tribe		
Yoruba	70	88.6
Non-Yoruba	9	11.4

Thirty (38.0%) of them had visited the dentist, out of which 18(60%) of the visits were done, more than 5years prior to this data collection, and only 5 (6.3%) visited in a previous one-year period. Reasons for dental clinic visit ranged from pain-related in 22 (73.0%) to scaling and polishing in 7 (22.0%) and orthodontic treatment in 1 (5.0%) case (Table 1). All participants used toothbrush for mouth cleaning, out of which 4 (5.1%) participants used chewing-stick in addition to the toothbrush. Many of the participants 57 (72.1%) brush "once-daily", 18(22.8%) brush "twice daily", while 4(5.1%) brush "occasionally". Also, 35(44.3%) use their toothbrush more than three

months before changing it, and 36(45.6%) respondents used medium-textured toothbrush (Table 2)

Interdental teeth cleaning materials included: wooden toothpick material (cocktail stick) 58(73.4%), plastic toothpick 10 (12.6%), dental-floss 8 (10.1%), broomstick 5 (6.3%) and pins 3 (3.7%) (Table 2). Fifty (63.3%) participants rated their oral health status as good (Table 3). Oral examination revealed that 28 (35.4%) participants had poor oral hygiene, and 24 (30.4%) had moderate/severe gingivitis. It also revealed the presence of carious teeth in 8 (10.1%) respondents and a mean DMFT score of 0.6.

Regarding the periodontal treatment need, all the study participants needed oral health education,

while 64 (81.0%) participants needed professional cleaning (scaling and polishing). (Table 3)

Table 2: Oral health behaviour of the respondents

Variables	Frequency	Percent (%)
Previous dental visit		
Yes	30	38.0
No	49	62.0
Last dental visit		
Never	49	62.0
>5years	18	22.8
≤5years	12	15.2
Brushing frequency		
<Once daily	4	5.1
Once daily	57	72.2
≥Twice daily	18	22.8
Brushing aid or cleaning tool		
Toothbrush only	75	94.9
Chewing stick only	0	0.0
Both	4	5.1
Toothbrush change		
1 month	8	10.1
2-3 months	36	45.6
>3 months	35	44.3
Bristle texture		
Soft	28	35.4
Medium	36	45.6
Hard	15	19.0

A higher proportion of the respondents with poor oral hygiene index had moderate/severe gingivitis (60.7%) as against those with good/fair oral hygiene index (11.6%) ($p < 0.001$) (Table 4). A total of 56 (70.9%) of participants had DMFT score of 0. The distribution of DMFT score among the study participants is as shown in Figure 1

DISCUSSION

A growing number of research studies have continued to stress the importance of wellness programs that integrate preventive dental care in work places. This is because of its link to better performance among staff, a factor that has been generating growing interests among employers of labour.^{18-20,27} However, for such programmes to be successful, it will require baseline parameters for which to serve as guide to planning the programmes. This study was therefore conducted to assess the oral health practices and status of workers in the

educational institution. Oral health practices such as preventive dental visits have been recommended for early detection of oral diseases and prompt intervention.²⁸ A prospective cohort study conducted in New Zealand to assess the effectiveness of routine dental visit on adults' oral health revealed that participants who maintained regular dental visit had better oral health outcomes, fewer tooth loss due to caries and better self-reported oral health²⁹. As such a visit of at least once in every six months was traditionally recommended for optimal preventive dental care.^{29,30} In this study, about two-thirds of the participants never visited the dentist. The majority of those who did, visited over 5 years prior to this study and mostly to relieve pain. The low or episodic, and problem driven (mainly toothache) pattern of utilization of dental services exhibited by participants in this study was similar to the reports obtained from many other studies conducted in Nigeria.³¹⁻³⁴

Table 3: Oral health status of the respondents

Variables	Frequency (79)	Percent (%)
Self-reported OH status		
Good	50	63.3
Average	21	26.6
Not sure	8	10.1
Decayed tooth		
No	71	89.9
Yes	8	10.1
Missing due to caries		
No	60	75.9
Yes	19	24.1
Filled		
No	77	97.5
Yes	2	2.5
DMFT		
0	56	70.9
≥1	23	29.1
Mean DFMT (±SD)	0.6	± 1.24
Sic Index (worst 1/3)	1.8	
S-OHI		
Good	19	24.1
Fair	32	40.5
Poor	28	35.4
Gingival index		
Mild gingivitis	55	69.6
Moderate/severe gingivitis	24	30.4
CPITN Score		
1	9	11.4
2	6	7.6
3	46	58.2
4	18	22.8
CPITN – Treatment need		
1	15	19.0
2	64	81.0

Regular mouth cleaning is important in the control of plaque accumulation and maintenance of gingival health. While the dental floss is recommended for inter-dental cleaning (tooth picking), a medium-textured toothbrush is traditionally favored for effective brushing.³⁵ Quite remarkably, a few participants brushed occasionally, many used soft and hard toothbrushes, while some engage in the use of potentially harmful interdental cleaning tools such as toothpick/ cocktail sticks, safety pins. The use of an appropriate interdental cleaning tool (dental floss) was left to about one tenth of the participant' population. Similar studies conducted among school teachers, health care workers and traders^{36–38}, in Nigeria, India and Pakistan showed similar trends: where a few brushed occasionally, many used hard bristled tooth brush and wooden toothpicks and

many were ignorant about dental floss. Toothpicks commonly feature in social functions and are readily served in eateries all over the country, after meals, for use as interdental teeth cleaning tools. Conventional toothpicks are usually made of wood and are either flat or round having a single point or having identical opposite points.³⁹ The wooden toothpick is particularly common in this environment gracing dining tables in most homes. However, its round and rigid design makes it less suitable for use as an interdental cleaning tool. Effective and safe cleaning of the interdental space, requires flexibility and thinness in tool design. These features will enable penetration into the interdental space without causing damage to the periodontal tissues.^{39,40}

Table 4: Factors associated with the oral health status of the respondents

Factors	Self-reported oral health status Good (49) n (%)		Oral hygiene status Poor (28) n (%)		Gingival health Moderate/Severe (22) n (%)		Periodontal treatment need Professional cleaning (61) n (%)	
	P-value		P-value		P-value		P-value	
Gender								
Female	29 (70.7)	0.874	13(29.5)	0.122	9 (22.0)	0.054	34(77.3)	0.442
Male	20(69.0)		15(46.9)		13(43.3)		27(84.4)	
Religion								
Christianity	33(82.5)	0.008*	15 (32.6)	0.343	11(24.4)	0.117	37(80.4)	0.963
Islam	16 (53.3)		13 (43.3)		11 (42.3)		24(80.0)	
Tribe								
Yoruba	44(69.8)	0.931	24 (35.3)	0.415	21 (33.3)	0.230	54(79.4)	0.587
Non-Yoruba	5(71.4)		4 (50.0)		1 (12.5)		7(87.5)	
Educational level								
Less than tertiary	8 (80.0)	0.438	4 (33.3)	0.804	5 (50.0)	0.18	10(83.3)	0.828
Tertiary or more	40(67.8)		23 (37.1)		17(28.8)		50(80.6)	
Age (years)								
≤40	20(62.5)	0.209	11(32.4)	0.465	8 (25.8)	0.406	27(79.4)	0.867
> 40	29(76.3)		17(40.5)		14(35.0)		34(81.0)	
Oral hygiene status								
Good/Fair	31(72.1)	0.721			5 (11.6)	<0.001*	33(68.8)	0.001*
Poor	17 (68.0)				17 (60.7)		28 (100)	

*Significant

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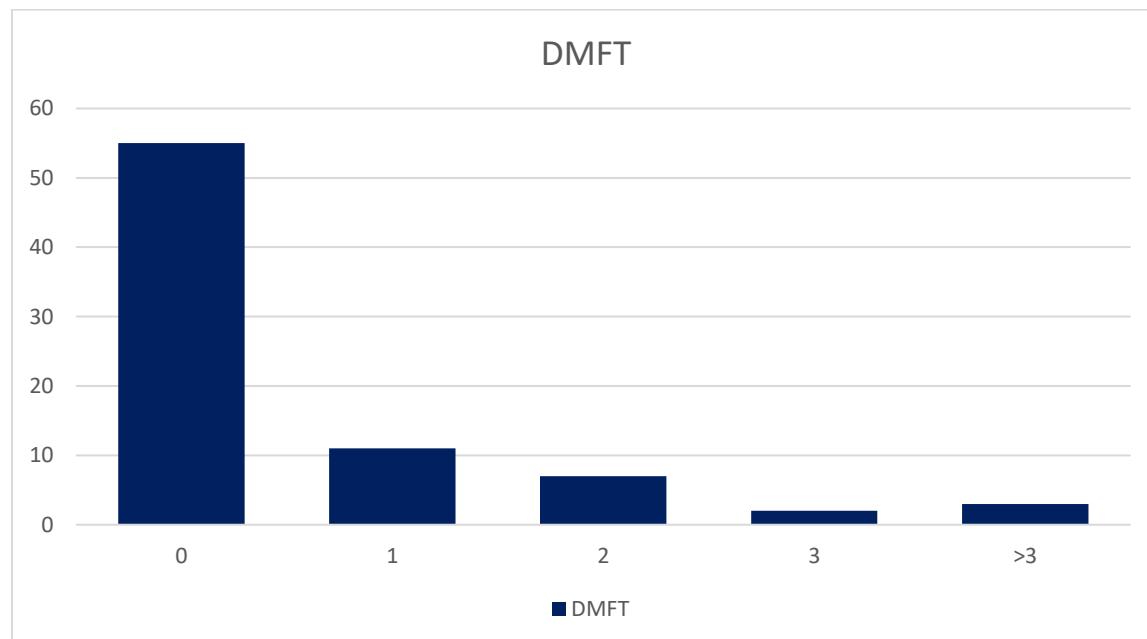


Figure 1: Distribution of DMFT among the study respondents

It is well known that the way an individual rates his or her oral health status is commonly determined by his subjective clinical oral conditions and its perceived impact on his daily life ^{41,42}. Self-perception of oral health status is considered a significant determinant of the measures in dental care, the individual will likely adopt, thus enabling better understanding of the dental care practices and oral health status. ^{13-15,41}

The majority of participants in this study rated their oral health status as good. This is similar to reports from other studies, conducted locally and internationally. ^{31,43} A probable reason is because most oral diseases are chronic, often silent and slowly progressive in nature. Many people are usually unaware of the disease presence until it becomes severe ⁴⁴. Therefore, most people only consider themselves as having oral health problems when they experience pain or discomfort. ⁴³ This also explains the reason for the episodic and problem driven dental visits, despite the fact that oral examination revealed a high proportion of the respondents had poor oral hygiene, and the periodontal treatment need indicated that most (four in every five) of them needed scaling and polishing. This finding is similar to the report from a study conducted among adult workers in India ³⁷ in which over 80% of those surveyed had need for professional cleaning. Although the prevalence for caries and DMFT scores were low, it is consistent with the literature for this environment. ^{5,31}

Limitation of the study: The distance between the main University campus and the venue of the outreach (within the UCH structure) may have been responsible for the low attendance of the outreach programme and the small sizes observed in some cells during analysis. However, the information generated is clinically relevant and useful as a guide to plan a viable oral health intervention for the study group.

CONCLUSION

The participants' self-report dental visits were low, and pain related. The majority of them perceived their oral health as good, some practiced the use of harmful interdental cleaning materials and most of them required professional dental treatment.

RECOMMENDATIONS

There is a need to improve awareness about the importance of regular dental visits, and dangers of harmful oral hygiene practices as well as promote good oral health practices among the staff in order to encourage positive oral health behavior. The oral

health outreach initiative may leverage on the findings of this research to plan a viable and sustainable programme that will improve the oral health and general well-being of staff which will ultimately result in improved work productivity among staff.

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Conflict of Interest

None declared

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