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Research Paper

Translating Oral health knowledge to behavior: Inferences from patients attending the GOPD of University of Abuja Teaching Hospital, Gwagwalada, Abuja, Nigeria.

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ABSTRACT
Background: While there has been significant improvement in oral health knowledge globally, the question remains whether such knowledge translate to day to day oral health behavior.
Aim: This study aims to determine the oral health knowledge of patients attending the GOPD in our hospital and determine if such knowledge translates to behavior.
Materials and Methods: This was a descriptive cross sectional survey of all 416 consecutive adult patients (≥ 18 years) attending general outpatient department of University of Abuja teaching hospital, Gwagwalada, Abuja. Data was collected using interviewer administered semi-structured pretested questionnaire after informed consent was given by every patient willing to participate. Information collected included oral health knowledge such as when to brush their teeth, types of brush, regularity of brushing, brushing techniques etc. Their knowledge was rated as excellent, good and poor. Their practice of oral heath was also determined by the number of times they brush, how many times they change their brush and dental clinic attendance. Obtained data were statistically analyzed using SPSS version 23.
Results. Age ranged from 18 to 60 years with mean 33.22 years (SD = 10.11). Two hundred and twenty-seven (54.6%) of the respondents were females while 189 (45.4%) were males. Two hundred and eighty-six, (68.8%) reported that they had received oral health information previously. However, only 32 (7.7%) respondents had excellent knowledge of oral health, 132 (31.7%) had good knowledge while 252 (60%) of the respondents had poor or no knowledge of oral health. The mean scores of oral health knowledge were significantly different across educational status ($p<0.05$) with those with higher educational status having better knowledge of oral health. The majority (98.6%) use toothbrush to clean their teeth but 62.0% (258) of the respondents brush their teeth twice daily. The majority (92.1%) are in the habit of using toothpick while only 1.7 % used dental floss. The majority of the respondents had never visited a dental clinic before. Out of the few that visited only 39.3% visited a dentist in the last 12 months.
Conclusion. A high proportion of the respondents had received oral health information yet their knowledge of oral health was inadequate. Furthermore, their oral health habit was poor. Therefore, it could be concluded that poor oral health behavior was due to poor oral health knowledge of the respondents. .
Key Words: *Oral health, knowledge, behavior, toothbrush, dental floss, toothpicks, dental visits*

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I. INTRODUCTION

Good oral health enables individuals to communicate effectively, enjoy a variety of foods, and it is important in the overall quality of life; self-esteem and social confidence.[1,2] There is an overwhelming evidence that oral health problems impact the quality of life negatively. It can prevent individuals from expressing positive emotions which in turn impact social interactions and how they feel about themselves[3]. A study on the impact of poor oral health on daily performance reported that eating, emotional stability, physical activities and

sleeping are negatively impacted by poor oral health. The study further observed that pain and discomfort, due to toothache were mainly perceived as the greatest influence on daily performance.[4]

There is an increasing awareness of oral health worldwide thus leading to general reduction in the incidence of oral diseases especially in the advanced countries. The improved literacy rate and access to information on health care.is said to positively influence their population view about oral health and utilization of oral health services. Such knowledge gained could empower the people to make informed choices about their oral health behavior and seek for prompt medical attention when they have issues with their oral health.

While it is clear that having adequate oral health knowledge improved oral health behavior in advanced countries, the same cannot be said of the developing countries. The high rate of illiteracy in the Norther part of Nigeria and low penetration of information is a strong barrier to achieving adequate knowledge about oral health[5, 6]. In the recent times influx of civil servants and business men to the Federal capital territory may have improved the literacy rate in the North central zone of the country, yet the poor supply of electricity, the relegation of oral health to general health in public health finance and policy are factors that negatively affect adequate oral health knowledge and practice in the Federal capital territory and the country as a whole.

Previous studies from the South Western part of the nation showed that many of the population have good oral health knowledge but show poor attitude and behavior.[7,8] It is true that one may have good knowledge and such does not translate into practice or behavior. This scenario occurs when necessary materials to put the knowledge into practice are not available or out of reach for the poor. It has been shown that more than 70% of Nigerians live on less than one dollar a day[9,10]

Therefore, they have to prioritize their spending on the essentials such as food and not on buying dentifrices such as dental floss, tooth paste and changing tooth brush every 6 months.

Other studies from the Northern region of the country show that the majority of the people have poor oral health awareness and practice.[11, 12] This is not surprising because poor oral knowledge will translate to poor behavior or practice. The Northern part of the country is stemmed in their culture and believes that permit little western influence. Furthermore, the region have the lowest number of dental professionals and dental schools in the country despite their huge population and size. Therefore, assess to dental health is limited and poor. In addition, dental treatment is expensive and out of pocket. And the facilities are located remotely such that the cost of transportation may be more than the cost of treatment. This presumably led to the rise of many dental quacks in the region who also imposed their beliefs on dental health on the populace.

There are many reports on the oral health knowledge of Nigerians in general but very few studies from the North central region. However, most of these studies do not show any link between their knowledge and oral health behavior. In view of the fact that good oral health is a key factor in enabling adults to achieve overall wellbeing and improved quality of life, it is important to assess individual's level of knowledge and determine whether it translate into behavior towards oral health. Although several studies have been reported on knowledge, and about oral health among Nigerian patients, most of studies are largely from the southern parts of the country. Therefore this study seeks to determine the level of knowledge, and its effect on oral health behavior among the patients attending the general outpatient department of the University of Abuja Teaching Hospital, Gwagwalada, Abuja.

II. MATERIALS AND METHODS

This was a questionnaire based cross-sectional study to determine the level of knowledge, and its effect on oral health behavior among the patients attending the General Outpatient Department of the University of Abuja Teaching Hospital, Gwagwalada, Abuja. Pretested questionnaire was administered to 416 consecutively recruited adult patients that consented to participate in the study. The pretest was done among 25 adult patients haphazardly selected in a primary health clinic about 25km away from the hospital. The pre-test was done to ensure that the questions were acceptable; there was willingness to answer them and they were appropriate in eliciting responses that were consistent with the study objectives. Ambiguous questions were rephrased.

Ethical clearance for the study was obtained from the Ethics Committee of the hospital. To ensure confidentiality, the instruments for data collection was identified using codes and not respondents' names, the instruments was handled by only the principal investigator, the statistician and two research assistants who were trained.

Data was collected using interviewer administered semi-structured questionnaire. The questionnaire consists of four sections. The first section contained questions on socio-demographic details of the respondents, while the second, third and fourth section elicited information on the respondents' knowledge of oral hygiene, oral hygiene measures, attitudes towards dental visit and practice of oral hygiene measures respectively. Weights were assigned to each answer on knowledge of oral health using one point for each questions answered correctly and 0 point for incorrect responses. Ethical clearance for the study was obtained from the Ethics Committee of the hospital.

Data analysis was done using Statistical Package for Social Science version 23 (SPSS 23). The results were expressed in frequencies and percentages. Differences between discreet variables were tested using chi-square. The weighted scores of the respondents on knowledge on oral hygiene were summed up. A total score of zero means no knowledge, 1 means poor knowledge. 2 means good knowledge while 3 means excellent knowledge. Mean scores of knowledge for males and females and according to educational classes were calculated and tested using student t-test. Statistically significant difference was inferred at $p<0.05$.

III. RESULTS

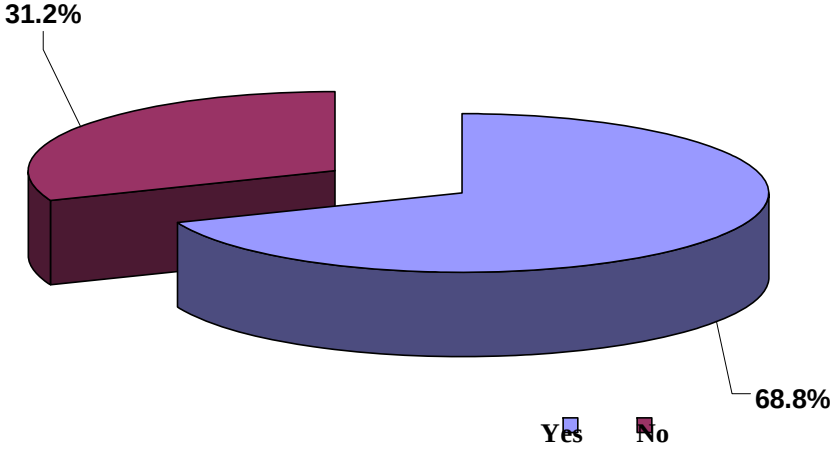
Table 1: Socio-demographic characteristics of respondents

Characteristic	Frequency (n = 416)	Percentage (%)
Age		
≤ 29	183	44.0
30-39	122	29.3
≥ 40	111	26.7
Sex		
Male	189	45.4
Female	227	54.6
Educational status		
None	16	3.8
Primary	34	8.2
Secondary	120	28.8
Post-secondary	246	59.1

The age of the respondents at the time of the interview ranged from 18 to 60 years. The mean age of the 416 respondents was 33.22 years (SD = 10.11); A higher proportion of the respondents (44.0% i.e. 183) were less or equal to 29 years; about 27.0% (111) were 40 years or more. The number of female respondents exceeded that of males by about 10.0%; 227 (54.6%) of the respondents were females and 189 (45.4%) were males. Two Two hundred and forty six (59.1%) respondents attended post-secondary institutions. At least 96.2% of the respondents had primary education and at least 87.9% had secondary education. Only 3.8% of the respondents had no education.

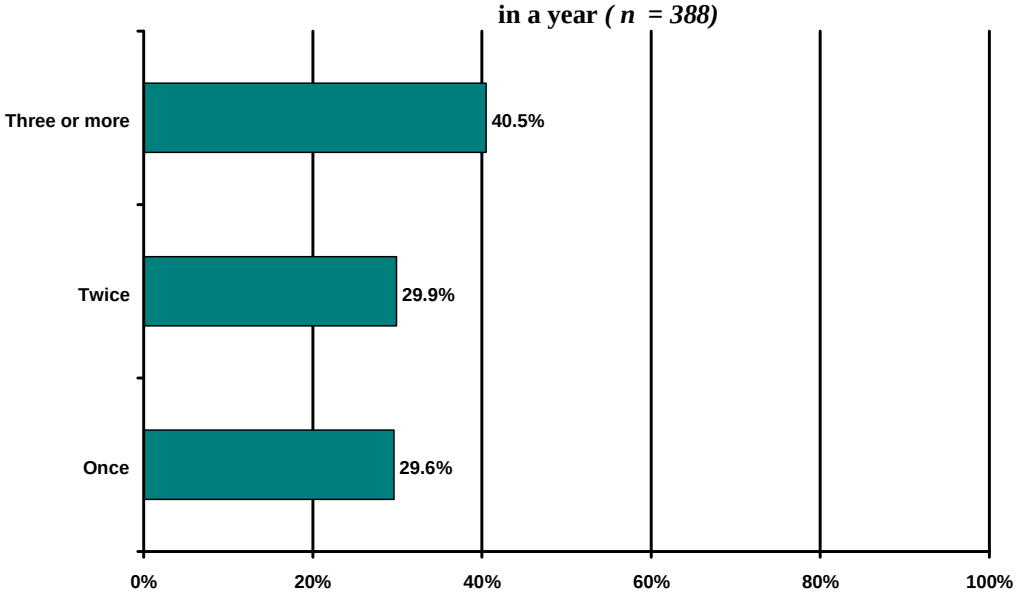
Two hundred and eighty six, (68.8%) of the respondents reported to have ever received oral health information. The remaining 130 (31.2%) had never received oral health information.

Figure 1: Distribution of respondents by receipt of oral health information *(n = 416)*



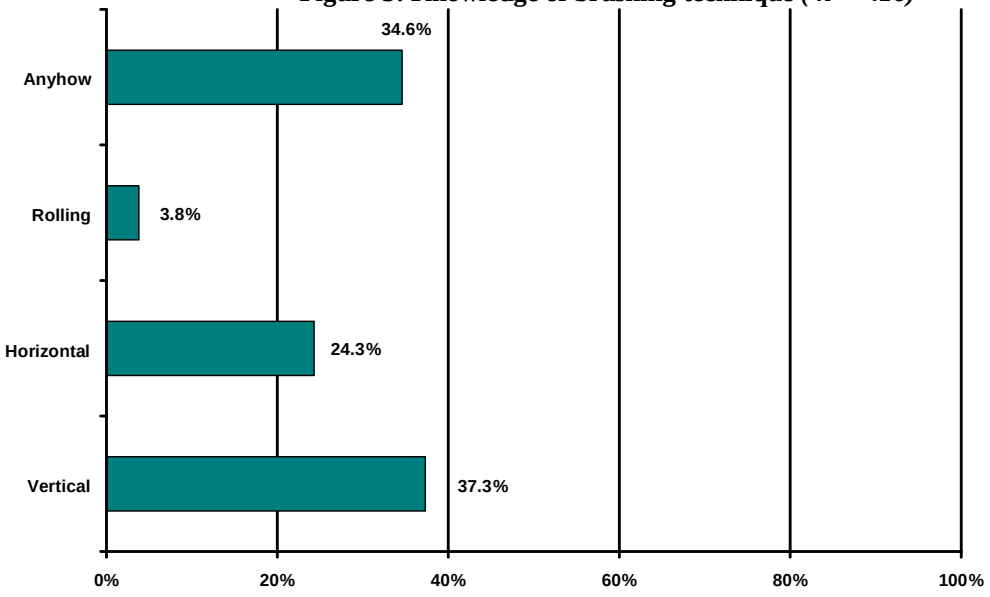
When asked how many times they should have dental check-up in a year, 388 responded to the question. About 30% opted for twice a year while about 70% selected either once or ≥ 3 times a year. (Figure 2)

Figure 2: Knowledge of the number of dental check-ups in a year *(n = 388)*



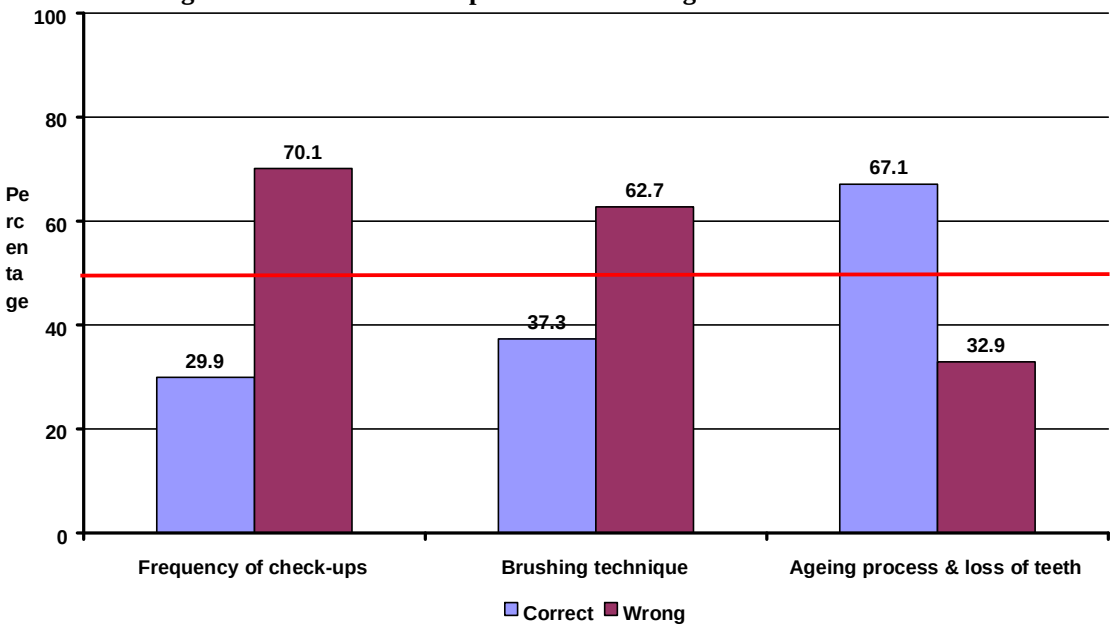
All the respondents responded to the question enquiring about how they should brush their teeth. About 37% (155) picked vertical, about 35% (144) picked anyhow; 24.3% and 3.8% opted for horizontal and rolling respectively.

Figure 3: Knowledge of brushing technique *(n = 416)*



Respondents' knowledge of oral health was assessed enquiring about frequency of dental checkup in a year, appropriate brushing technique and associating loss of teeth with ageing process. Figure 4 shows the distribution of respondents by status (correct or wrong) of their knowledge of oral health. More than 60% of respondents had wrong knowledge of frequency of check-ups and brushing technique. However, over 60% correctly dissociated ageing as a reason for loss of teeth.

Figure 4: Assessment of respondents' knowledge of oral health



Each of the 3 proxies used for assessing respondents' oral health knowledge was given a score of one (1). Hence, a respondent can obtain a maximum of three (3) points if s/he has correct knowledge of the three proxies and zero if s/he has wrong knowledge of the three proxies. Table 2 shows the distribution of respondents by the scores obtained regarding the knowledge of oral health. Only 32 (7.7%) respondents obtained the maximum score of three i.e. they had excellent knowledge of oral health. One hundred and thirty two (31.7%) had good knowledge. More than 60% (252) of the respondents had poor or no knowledge of oral health.

Table 2: Scores obtained by respondents on knowledge of oral health

Level of knowledge	Scores	Frequency	%
No knowledge	0	62	14.9
Poor knowledge	1	190	45.7
Good knowledge	2	132	31.7
Excellent knowledge	3	32	7.7
Total	3	416	100.0

Mean = 1.32 (SD = 0.82)

Table 3 shows the mean scores obtained for oral health knowledge across age, gender and educational status. The scores were significantly different across educational status. Across age groups the mean scores decreased with increasing age (p = 0.851). Women had better knowledge of oral health than men (p = 0.409). The more years spent getting education, the higher the knowledge of oral health and the difference in means was significant.

Table 3: Distribution of respondents by mean score of oral health knowledge by several characteristics

Variable	Mean	F	p
Age			
≤ 29 years	1.34		
30-39 years	1.32		
≥ 40 years	1.29	0.161	0.851
Sex			
Male	1.29		
		0.683	0.409

Female	1.35		
Educational status			
None	0.81	2.678	0.047
Primary	1.26		
Secondary	1.28		
Post-secondary	1.38		

Figure 5: Frequency of tooth brushing reported by respondents *(n = 416)*

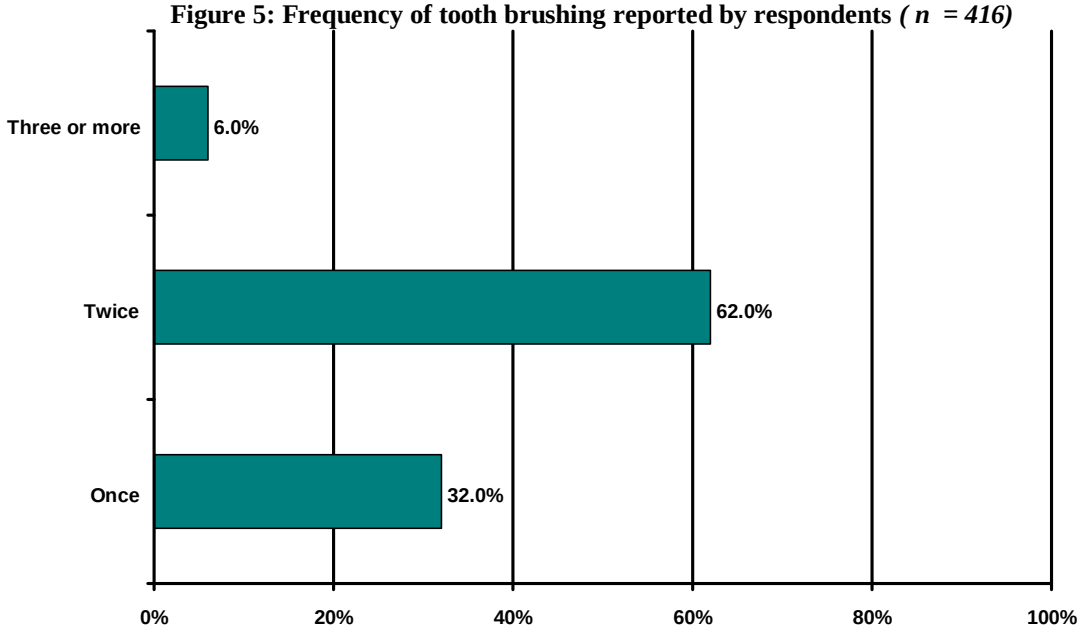
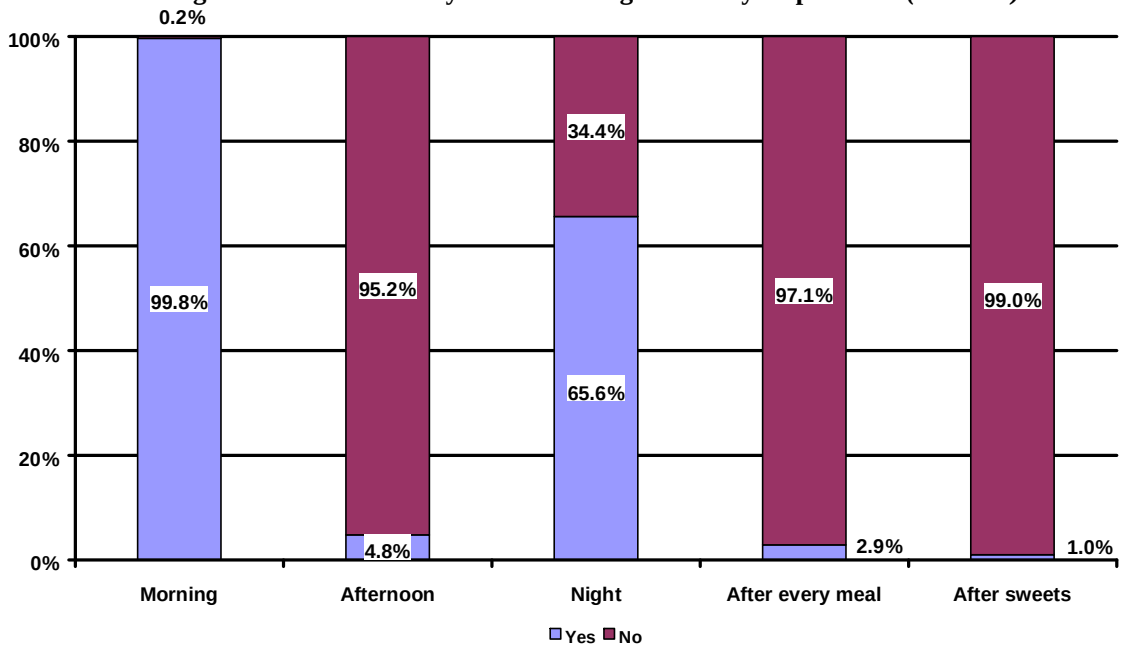


Figure 6: Time of the day tooth brushing is done by respondents *(n = 416)*

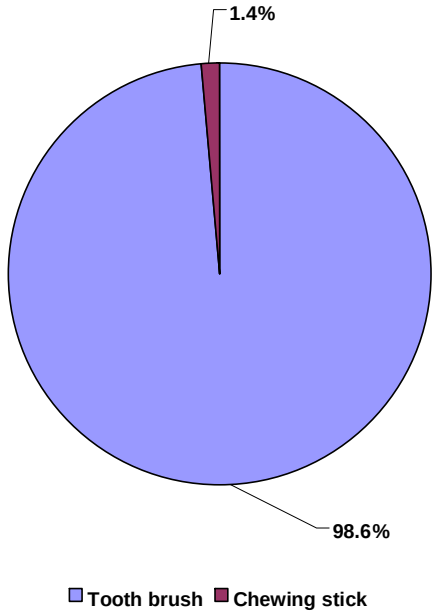


In figure 5, 62.0% (258) of the respondents brush their teeth twice a day; 32% do it once a day and 6.0% do it three or more times a day.

Almost all of the respondents (99.8%) brush their teeth in the morning, while 65.6% brush at night. About 3% brush immediately after every meal and 1% after taking sweets. This pattern of brushing is depicted

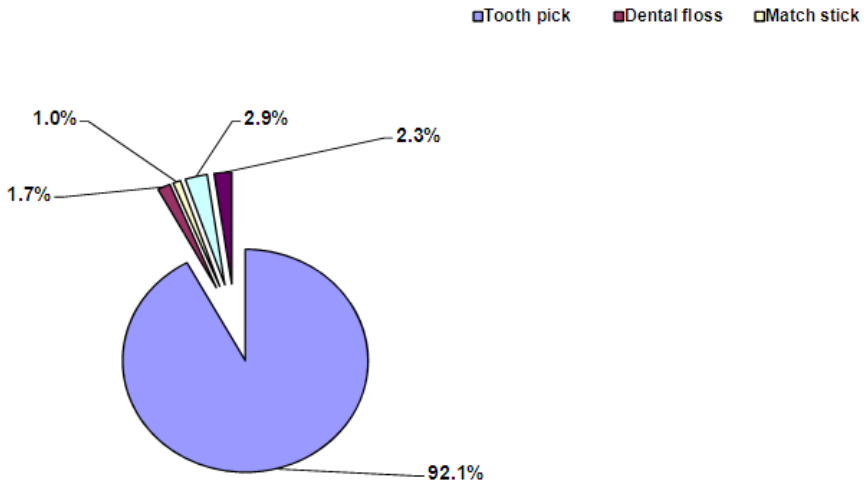
graphically in figure 6. The popular tool among the respondents for keeping their teeth clean on a regular basis was tooth brush (Figure 7); almost 99% of the respondents use it. The other respondents opted for chewing stick to keep their teeth clean.

Figure 7: Respondents choice of tool regularly used to keep the teeth clean *(n = 416)*



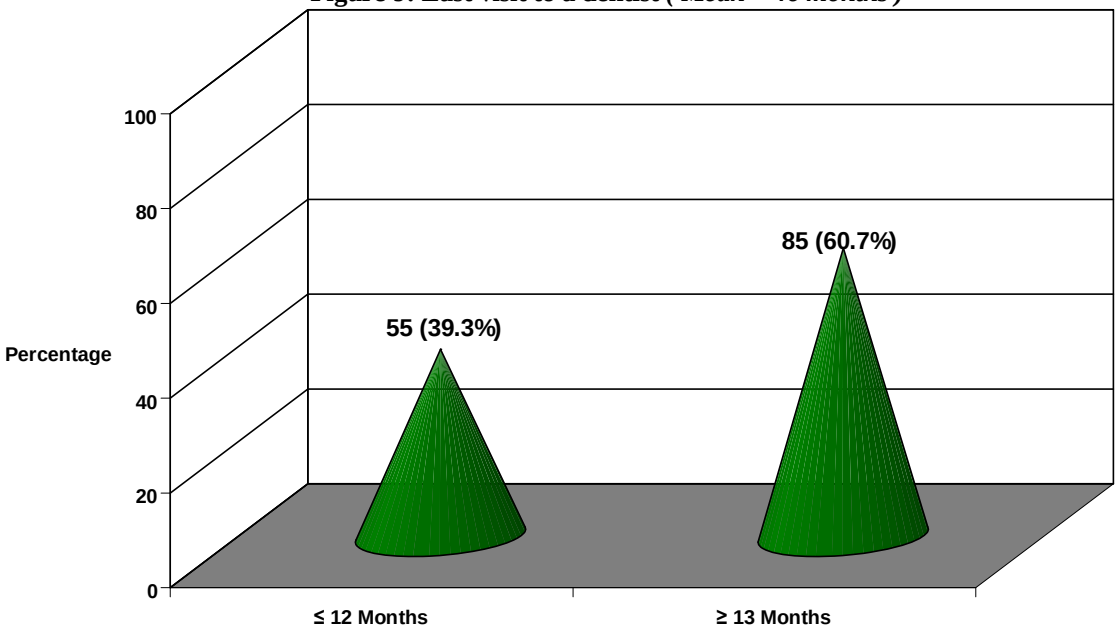
Tooth pick, dental floss, match stick, broom stick etc. were reported by respondents as tools used regularly to remove debris from between the teeth (Figure 8). The commonest tool in use was tooth pick (92.1%). Dental floss was sparsely used (1.7%). The least used tool was the match stick. Other tools reported for removing debris were chewing gum, finger nails, needle, thread and water.

Figure 8: Tool used to remove debris from between teeth regularly *(n = 416)*



One hundred and forty respondents (33.7%) admitted to have visited a dentist before. The distribution of these respondents by the duration of when last they visited a dentist is shown in figure 9. The average duration of the last visit to the dentist among the respondents was 46 months (~ 4 years). Fifty five respondents (39.3%) had visited a dentist in the last 12 months at the time of this study; the remaining eighty five (60.7%) respondents had not visited a dentist in the last 12 months or 1 year.

Figure 9: Last visit to a dentist *(Mean = 46 months)*



IV. DISCUSSION

A sizeable proportion of the respondents, 286 (68.8%) claimed to have received oral health information before the study. This reflected in the dental behavior of the respondents; almost all the respondents' use tooth brush to keep their teeth clean and at least 62% brush in the morning and at night as recommended by dentists and dental hygienists[13,14,15]. These are satisfactory tooth brushing behaviour. Azodo et al[16] found that 71.9% of students of the Federal School of dental therapy and technology, Enugu, Nigeria brush their teeth twice daily. Umesi-Koleoso and Ayanbadejo[17] reported that 96.3% of the adolescents they studied in Lagos used tooth brush and tooth paste for oral hygiene at least once a day. Likewise, Adegbulugbe and Adegbulugbe[18] found that tooth paste with tooth brush was the most common form of oral hygiene practice (90.6%) among patients attending oral diagnosis clinic at Lagos University Teaching Hospital. But having a lot of the respondents reporting that they have received oral health information did not translate to having oral health knowledge which was evaluated via three proxies, frequency of check-ups, brushing technique and ageing as a reason for tooth loss. The result in this study is in agreement with other Nigerian studies that reported poor knowledge about oral hygiene[19,20]. These findings are however contrary to the study of Abiola et al[21] conducted in Lagos and similar studies in developed countries[22-24] which found a reasonable level of dental knowledge among their study populations. Although this study was conducted in a tertiary health centre the population was less educated. Studies have shown that the dental knowledge of the patients increases with their level of education[25,26]. As expected there was a significant relationship between mean knowledge scores and the level of education which is in agreement with other studies.[19,21] Respondents with post secondary education are more likely to have better access to appropriate sources of information on oral hygiene and dental diseases, especially with the recent advances in internet and telecommunication technology.

Only a very small proportion (1.7%) of the participants used dental floss as tool to remove debris from between teeth. This is similar to the 2% reported by Gopikrishna et al.[27] the 0% reported by Jain et al [28] and Jamjoom[29] but lower than 13.1% reported by Aliyu et al[11], 44% reported by Hamilton and Couby.[30] and 28% reported in a study in the United States.[31] Most respondents 92.1%, in this study unfortunately used toothpicks with potentials of causing gum and periodontal damage to clean interdental debris. Although dental floss may not be as readily available as toothpick which is cheap and readily available in markets and stores, the main factor responsible for use of toothpick by most respondents may not be unconnected with the low level of oral health knowledge as shown in this study. There is therefore a need for oral health education and enlightenment programs to motivate the public on the use of dental floss and discourage the use of toothpicks and other injurious tools for interdental cleaning.

A review of some Nigerian studies by Sofola[32] revealed that between 52% and 80% of Nigerians had never been to a dentist. The current study found that 66.3% of the respondents had never visited a dentist, a proportion within the range of previous Nigerian studies. Only 55 (13.2%) respondents out of 416 had visited a dentist within the previous 12 months of the current study. This was comparable with 14.9% that Akaji et al[33] found in Lagos among secondary school students. In contrast, Bamise et al[34] found that 7.8% of their study population at Ile-Ife indicated that they visited the dental hospital within the last 12 months and Okunseri et al[35]

documented that 26% of the adults they studied at Benin reported having visited a dentist within the previous 12 months. But the prevalence of dental visit in the previous 12 months at Kuwaiti as reported in a study by Al-Shammari et al[36] was 58.4%. Considering the findings of this current study and the other Nigerian studies, prevalence of dental visit in the previous 12 months in Nigeria varies between 7.8% and 26%. This is very poor compared to 58.4% reported in the study done at Kuwaiti. Hence, 361 (86.8%) of the respondents had not visited a dentist in the last 12 months preceding the current study for routine dental check-up or dental treatment.

V. CONCLUSION

A high proportion of the respondents had received oral health information but this did not reflect in their knowledge of oral health which was inadequate but increased with educational status. Despite the inadequate oral health knowledge a good number of respondents demonstrated a satisfactory tooth brushing behavior. However their dental visit behavior was nothing to write home about. There is therefore a need to organize oral health education programs to enlighten the populace on the importance of oral health and the need for regular dental visits in the prevention and early diagnosis of dental diseases.

REFERENCES

[1]. Richard GW. Strategies and approaches in oral disease prevention and health promotion. Bulletin of World Health Organization. 2005; 83(9):711-718.
[2]. World Health Organization Oral Health 2007. Available from:**http:// www.who.int/mediacentre/factsheets/fs318/en/index.html**
[3]. Azodo CC, Ehizele AO, Umoh A, Ojehanon PI, Akhionbare O, Okechukwu R et al. Perceived oral health status and treatment needs of dental auxiliaries. Libyan Journal of Medicine. 2010; 5 (Open access)
[4]. Adulyanon S, Vourapukjaru J, Sheiham A. Oral impacts affecting daily performance in a low dental disease Thai Population. Community Dent Oral Epidemiol. 1996; 24(6):385-9
[5]. Olusile AO, Abiola Adetokunbo Adeniyi AA, Orebanjo O. Self-rated oral health status, oral health service utilization, and oral hygiene practices among adult Nigerians. BMC Oral Health. 2014; 14:140-148.
[6]. National Populations Commission: Population census of the Federal Republic of Nigeria, Analytical report at the national level. Abuja, Nigeria; 2009.
[7]. Adeniyi AA, Sofola OO, Kalliecharan RV. An appraisal of the oral health system in Nigeria. Int Dent J. 2012; 62(6):292–300.
[8]. Akpata ES. Oral health in Nigeria. Int Dent J. 2004; 54(6 Suppl 1):361–366.
[9]. Barnes Anger. Poverty Eradication, Millennium Development Goals and Sustainable Development in Nigeria Journal of Sustainable Development. 2010;3(4);138-144
[10]. Raji MO, Ayoade OB, Usoro A. The prospects and problems of adopting ICT for poverty eradication in Nigeria. EJISDC. 2006;28(8):1-9.
[11]. Aliyu I, Michael GC, Teslim LO, Ibrahim ZF. Oral hygiene practices among patients seen in the general outpatient clinic of a tertiary health center. SRM J Res Dent Sci. 2017;8:152-156.
[12]. Adeleke AO, Danfilo IS. Utilization of oral health services by mothers of preschool children in Jos North Local Government Area, Plateau State, Nigeria. Malawi Med J. 2005;16(2):33-36.
[13]. Abraham NJ, Cirincione UK, Glass RT. Dentists' and dental hygienists' attitudes toward toothbrush replacement and maintenance. Clinical and Preventive Dentistry. 1990; 12(5):28-33.
[14]. Leichter J, Pack AR. The attitudes of New Zealand dentists and dental hygienists towards toothbrushes and tooth brushing. Journal of New Zealand Society of Periodontology. 1999; (84):14-17
[15]. Daly CG, Marshall RI, Lazarus R. Australian dentists' views on toothbrush wear and renewal. Australian Dental Journal. 2000; 45(4):254-256
[16]. Azodo CC, Ehizele AO, Umoh A, Ojehanon PI, Akhionbare O, Okechukwu R, Igbinosa L. Tooth brushing, tongue cleaning and snacking behavior of dental technology and therapist students. Libyan Journal of Medicine. 2010;5:5208-DOI: 10.3402/ljm.v5i0.5208
[17]. Umesi-Koleoso DC, Ayanbadejo PO. Oral hygiene practices among adolescents in Surulere, Lagos State. Nigeria Quarterly Journal of Hospital Medicine. 2007; 17(3):112-115.
[18]. Adegbulugbe IC, Adegbulugbe IC. Factors governing the choice of dentifrices by patients attending the Dental Centre, Lagos University Teaching Hospital. Nigeria. Quarterly Journal of Hospital Medicine. 2007;17(1):18-21.
[19]. Umeizudike KA, Onajole AT, Ayanbadejo PO. Periodontal health knowledge of nonmedical professionals and their oral hygiene behavior in a teaching hospital in Nigeria. Eur J Gen Dent. 2015;4:48-54.
[20]. Omili M, Ofili AN, Omuemu V. Oral health perception among officers and men of the Nigerian prisons service. Eur J Gen Dent. 2013;2:252- 256.
[21]. Abiola A, Olayinka A, Mathilda B, Ogunbiyi O, Modupe S, Olubunmi O. A survey of the oral health knowledge and practices of pregnant women in a Nigerian teaching hospital. African Journal of Reproductive Health, 2011; 15(4):14-19.
[22]. Thomas N.J., Middleton P.F. and Crowther C.A. Oral and dental health care practices in pregnant women in Australia: a postnatal survey. BMC Pregnancy and Childbirth. 2008; 8(13):1-6.
[23]. Lyndon-Rochelle MT, Krakowiak P, Hujoel P, Peters RM: Dental care use and self-reported dental problems in relation to pregnancy. Am J Public Health. 2004;94:765-771.
[24]. Hullah E., Turok Y., Nauta M. and Yoong W. Self-reported oral hygiene habits, dental attendance and attitudes to dentistry during pregnancy in a sample of immigrant women in North London. Arch Gynecol Obstet. 2008; 277:405–409
[25]. Avula H, Mishra A, Arora N, Avula J. KAP assessment of oral health and adverse pregnancy outcomes among pregnant women in Hyderabad, India. Oral Health Prev Dent. 2013;11:261-270.
[26]. Mårtensson C, Söderfeldt B, Andersson P, Halling A, Renvert S. Factors behind change in knowledge after a mass media campaign targeting periodontitis. Int J Dent Hyg. 2006;4:8-14.
[27]. Gopikrishna V, Bhaskar NN, Kulkarni SB, Jacob J, Sourabha KG. Knowledge, attitude, and practices of oral hygiene among college students in Bengaluru city. J Indian Assoc Public Health Dent. 2016;14:75- 79.

[28]. Jain N, Mitra D, Ashok KP, Dundappa J, Soni S, Ahmed S, *et al*. Oral hygiene‐ awareness and practice among patients attending OPD at Vyas dental college and hospital, Jodhpur. J Indian Soc Periodontol. 2012;16:524‐ 528.
[29]. Jamjoom HM. Preventive oral health knowledge and practice in Jeddah, Saudi Arabia. J KAU Med Sci. 2001;9:17‐ 25
[30]. Hamilton ME, Coulby WM. Oral health knowledge and habits of senior elementary school students. J Public Health Dent 1991;51:212‐ 219.
[31]. Isringhausen KT. "Tooth Brushing, Flossing, and Preventive Dental Visits by Richmond‐ Area Residents in Relation to Demographic and Socioeconomic Factors" (2004). VCU Theses and Dissertations. Paper 1418. Available from: http://www.scholarscompass.vcu.edu/ etd/1418. [Last cited on 2014 Jan 25].
[32]. Sofola OO. Implications of low oral health awareness in Nigeria. Nigeria Medical Journal. 2010; 51(3):131-133
[33]. Akaji EA, Oredugba FA, Jeboda SO. Utilization of dental services among secondary school students in Lagos, Nigeria. Nigerian Dental Journal. 2007;15(2):87-91
[34]. Bamise CT, Bada TA, Bamise FO, Ogunbodede EO. Dental care utilization and satisfaction of Residential University students. Libyan Journal of Medicine. 2008; 3(3):140-143.
[35]. Okunseri C, Chattopadhyay A, Lugo RI, McGrath C. Pilot survey of oral health-related quality of life: a cross-sectional study of adults in Benin City, Edo State, Nigeria. BMC Oral Health 2005; 5:7-14
[36]. Al-Shammari KF, Al-Ansari JM, Al-Khabbaz AK, Honkala S. Barriers to seeking preventive dental care by Kuwaiti Adults. Medical Principles & Practice. 2007; 16(6):413-419.