ORAL HYGIENE KNOWLEDGE HABITS AND PRACTICES AMONG PRIMARY SCHOOL PUPILS IN KANO NIGERIA

Jibo A.M,[1] Mubarak M.T,[2]

[1] Maternal and Child Health Unit, Department of Community Medicine, Bayero University Kano, Nigeria

[2] Department of Medicine, Mutala Mohammed Specialist Hospital, Kano, Nigeria

Corresponding Author:

Dr A.M. Jibo

Maternal and Child Health Unit, Department of Community Medicine, Bayero University Kano, Nigeria

E mail: Jiboam@gmail.com

+2348038058232

ABSTRACT

Background: Promotion of oral hygiene is one of the components of primary health care in Nigeria. However, good dental health is a privilege of the wealthy few who can afford expensive dental care. Though most studies reported that between four to 30% of Nigerians have dental caries a prevalence of 58% was reported among northern urban dwellers. Periodontal disease with deep pocketing occurs in Nigerians at an early age. Dental caries and periodontal diseases are the two dental diseases which are entirely preventable

Aim: To compare oral hygiene, habits and practices among primary school children attending public and private schools in Gwale local government, Kano state.

Method: A descriptive comparative cross sectional study was conducted by administering pre-tested, structured, mostly closed ended interviewer-administered questionnaires to 400 children. Respondents were selected using systematic sampling technique from two schools in the study area. Their responses were collated and analyzed.

Results: The mean age of the respondents was 11.7± 2 (years) for the public and 11.5 ± 1.1 (years) for the private school. Better knowledge of oral hygiene was observed among students of private school students (63.5%) compared to those in public school (36.5%) and better practices in private school (81.5%). Significant differences were observed among students of the study schools in methods of brushing, frequency, parental supervision as well as visit to dentists ($p<0.05$).

Conclusion: More attention should be given to oral hygiene particularly through mothers' involvement which most certainly will result in remarkable improvement in oral hygiene among our children.

Key words: Pupils, Oral Hygiene, Knowledge, Practices

Introduction

Oral health is increasingly being recognized as an important part of general health all over the world, however in developing countries, it is given less priority possibly because of the prevalence of communicable disease like tuberculosis, diarrheal diseases, HIV/AIDS, measles, etc. which are often life threatening. Oral health can be defined as standard of health of the oral cavity and related tissues which enables an individual to eat, speak and socialize without active disease, discomfort or embarrassment and which contributes to the general well being of that individual.[1] On the other hand Oral hygiene can best be described as the practice of keeping the mouth and teeth clean to prevent dental problems and bad breath.[2] Oral health and hygiene are considered important in maintaining adequate health of the oral cavity.

Dental ailments have remained remarkably similar throughout human history. Decay, toothache, periodontal disease and premature tooth loss were documented in ancient chronicles. In the Egyptian manuscripts known as Eber's papyri, which dated back to 3700 B.C., dental maladies such as toothaches and swollen gums were mentioned. Dental caries and periodontal diseases are the two dental diseases which are entirely preventable. In spite of the mouth's natural cleansing factors (like the cleansing effect of saliva, cheeks and lips etc) the teeth and the tongue often remains not very clean . These natural factors of self-cleansing may not be able to eliminate contaminants such as food debris, tobacco, metallic salt, medicaments that tend to alter the normal chemical, bacterial and physical balance of the forces of oral hygiene in the mouth.[3]

There is evidence that dental caries is most prevalent among well-nourished communities in developed countries, while the incidence tends to be low where living standards are poor.[4] On the other hand prevalence of periodontal disease is high in developing countries, [5] and its occurrence is related to poor oral hygiene and low socio-economic status. [6] Thus periodontal disease accounts for high proportion of teeth loss in the population in developing countries.

During the last two decades many developed countries experienced a decline in prevalence of dental caries among children and adolescents. [7,8] The reasons for this improved oral health are many but specifically could be attributed to reduced sugar consumption, improved oral hygiene practices , use of fluorides in tooth pastes, establishment of school based oral health preventive services and effective use of oral health services. [9, 10, 11] Paradoxically, a rise in prevalence of dental caries is continuously being observed in developing countries partly because preventive programs are nonexistent or poorly implemented or Increasing urbanisation and changing dietary habits have ushered in rapidly escalating rates of dental caries. [12-15]

Millions of Nigerians suffer from poor oral health which has negative consequences for nutritional and developmental well-being. Even though provision of oral health is one of the components of primary health care in Nigeria, good dental health is a privilege of the wealthy few . The caries pattern follows closely, the affluence level as well as ethnic variation, both of which reflect dietary practices within the society. Though most studies reported that between four to 30% of Nigerians have dental caries a prevalence of 58% was reported among northern urban dwellers. [13] Periodontal disease with deep pocketing occurs in Nigerians at an early age, the prevalence being 15-58% in those aged above 15 years. Caries experience has been reported to vary between very low and low in most studies, but is moderate in urban communities.[15]

About 90% of school children worldwide and most

adults have experienced caries, with the disease being most prevalent in Asian and Latin American countries.[16]

Apart from these two diseases which constitute the commonest oral health challenge, In Nigeria there are other oral health conditions of greater public health concern like cancrum oris (NOMA) and acute necrotising ulcerative gingivitis (ANUG). Annual incidence of noma is approximately 20 cases per 100 000 children with about 90% resulting in death from lack of medical intervention1.[17] Other conditions like the occurrence of maxillofacial traumas in Nigeria is assuming an alarming dimension as a consequence of communal violence, banditry and motor vehicle accidents . The prevalence of oral cancer is also on the

increase, as a consequence of rapid urbanisation and increasing use of tobacco and alcohol. The incidence of pre-cancer and oral cancer lesions is estimated to approximate 25 cases per 100 000 annually in developing countries.[18]

Studies on oral hygiene in Nigeria are few and rather limited to certain parts of the country and even though some of them are representatives of both rural and urban communities, the availability of these results for the total population of the country is lacking. This study therefore identifies the relative roles of some socio-demographic variables on habits and interplay of such habits on oral health among primary school children in Kano, urban Nigeria.

METHODS

The study schools selected were Dandago special primary school (public) and Sheikh Basher primary school (private school). Dandago special primary school was founded in the year 1934 and has 5481 pupils with 53 teachers, while Sheikh Bashir school was founded in 1993 and has 500 pupils with 30 school teachers. None of these schools has a school clinic, thus school pupils and their teachers utilize nearby primary health centres for health care services

The study design is comparative descriptive study design. The study population was primary school pupils up to grade six drawn from these selected private and public schools within the LGA. Using a multistage sampling technique, Gwale, a metropolitan local government area (LGA) was first selected from the list of eight metropolitan LGAs in Kano. In the second stage schools were selected from the list of public schools on one hand and private schools on the other using a simple random selection procedure. Taking pupil's class attendance registers as our samplings frame, sampling intervals were determined and every second pupil in Dandago and 14th pupil in Sheik Bashir's schools were enrolled for this study until the required sample size was obtained. The survey was carried out for five days during schooldays to ensure no eligible pupil was left out.

Preparation for data collection

Data was collected using a structured interviewer administered questionnaire adapted from World Health Organization (WHO) oral health assessment form and tools (OHAT).The questionnaire collects basic information on knowledge, practices and physical assessment of oral health.

Six research assistants: two medical doctors, two dental officers and two nurses were trained on the technique of questionnaire administration for 2 days. The questionnaire was pre tested in a different LGA, and corrections were made to the tool to capture the necessary information needed. Spot checks on questionnaire filling were conducted by the author during the study to ensure quality data collection.

Data collected from the questionnaires was entered in to Microsoft excel by data entry clerks for

cleaning and 10% of the data was entered to check for consistency and quality of the entries. The data collected was analyzed using SPSS software version 20.0. Categorical data was presented in form of frequency tables and percentages. Chi square statistical test of significance (x^2) was used to determine significant association between qualitative variables using $p<0.05$ as significant level.

RESULTS

Four hundred primary school students from Dandago special primary school and sheikh Bashir Primary school constituted the subjects of the study. The age range of the respondents was 5–19 years. The mean age of the respondents was 11.7± 2 (years) and 11.5 ± 1.1 (years) and also most of the respondents were between 10–14 years, 86% and 95.5% for Dandago and Sheikh Bashir primary schools respectively.

The information henceforth was obtained from the questionnaires.

Table 1: Sociodemographic characteristics of the respondents

S.No	Socio demographic features	N=400	%
1.	**Age groups (years)**		
	5–9	31	(7.8)
	10–14	363	(90.8)
	15–19	6	(1.5)
2.	**Sex**		
	Male	202	(50.5)
	Female	198	(49.5)
3.	**Ethnic group**		
	Hausa	341	(85.3)
	Fulani	50	(12.5)
	Yoruba	3	(0.8)
	Igbo	4	(1.0)
	Others	2	(0.5)
4.	**Fathers Education**		
	None	4	(1.0)
	Qur anic	163	(40.8)
	Primary	56	(14.0)
	Secondary	177	(44.3)
	Tertiary	0	0
5.	**Mothers Education**		
	None	17	(4.3)
	Qur anic	209	(52.3)
	Primary	6	(1.5)
	Secondary	67	(16.8)
	Tertiary	101	(25.3)
6.	**Fathers Occupation**		
	Farmer	8	(2.0)
	Businessman	216	(54.0)
	Civil servant	142	(35.5)
	Others	34	(8.5)
7.	**Mothers Occupation**		
	Housewife	276	(69.0)
	Trader	25	(6.3)

Table 2: Knowledge of the Pupils on Oral Health

	Knowledge Assessed (n=400)	Correct	Incorrect	Don't Know
		N %	N %	N %
1.	Eating Sweet food can cause dental decay and caries	333 (83.3)	61 (15.3)	6 (1.5)
2.	Regular tooth brushing protects the teeth	369 (92.3)	13 (3.3)	3 (4.5)
3.	Teeth Appearance is affected by decayed or carious tooth	310 (77.5)	46 (11.5)	44 (11.0)
4.	Sweet can cause tooth decay	353 (88.3)	33 (8.3)	14 (3.5)
5.	Soft drinks can damage the teeth	141 (35.3)	246 (61.5)	13 (3.3)
6.	General body health has relationship	281 (70.3)	100 (25.0)	3 (4.8)
7	Regular visit to dentist improves dental Health	205 (51.3)	175 (43.8)	20 (5.0)

Table 3: Students Habits and Practices regarding Oral Hygiene

S.No	Habits and Practices		
1.	**Methods used to brush teeth**		
	Tooth brush	168	(42.0)
	Chewing stick	44	(11.0)
	Charcoal	37	(9.3)
	Others [1]	151	(37.8)
2.	**Frequency of tooth brushing**		
	Less than once a day	8	(2.0)
	Once a day	220	(55.0)
	Twice a day	132	(33.0)
	More than twice a day	40	(10.0)
3.	**Time spent on brushing**		
	Less than 3 min	391	(92.7)
	More than 3 min	29	(7.30)
4.	**Frequency of eating sweet food**		
	Less than once a day	179	(44.8)
	Twice or more a day	221	(45.2)
5.	**Frequency of taking soft drinks**		
	Never	169	(42.3)
	Once a while	177	(44.3)
	Everyday	54	(13.5)
6.	**Parent supervising child while brushing**		
	Watch and advise	68	(17.0)
	Advise	20	(5.0)
	Do not watch and supervise	312	(78.0)
7.	**Ever Visit a Dentist**		
	Yes	52	(13.0)
	No	348	(87.0)
8.	**Reason for not visiting a Dentist**		
	I don't have tooth problem	146	(42.0)
	High cost	37	(10.6)
	No clinic nearby	12	(3.4)
	Fear of tooth drilling or removal	153	(44.0)

Table 4: Comparing Practices of Oral Hygiene of Dandago and Sheikh Bashir Primary School Pupils.

Practice of Oral Hygiene	Dandago	Sheikh Bashir	Chi square	P–value
	n=200	n=200		
Method used	f %	f %		
Toothbrush	168 (84.0)	188 (94.0)	10.21	0.001
Others	32 (16.0)	12 (6.0)		
Frequency of brushing				
<1/day	66 (33.7)	18 (9.0)	162.78	0.000
1/day	110 (56.1)	35 (17.5)		
>1/day	20 (10.2)	147 (73.5)		
Time spent				
<3min	116 (59.2)	129 (64.5)	1.19	0.276
>3min	80 (40.8)	71 (35.5)		
Frequency of eating sweet food				
<1/day	160 (80.0)	50 (25.0)	121.30	0.000
≥2/day	40 (20.0)	150 (75.0)		
Frequency of eating candy				
Never	40 (20.0)	19 (9.5)	43.57	0.000
Once in a while	118 (59.0)	76 (38.0)		
Everyday	42 (21.0)	105 (52.5)		
Frequency of taking soft drinks				
Never	10 (5.0)	13 (6.5)	92.48	0.000
Once in a while	154 (77.0)	60 (30.5)		
Everyday	36 (18.0)	127 (63.5)		
Parent supervision				
Watch and advice	16 (8.0)	159 (79.5)	223.27	0.000
Advice	164 (82.0)	23 (11.5)		
None	20 (10.0)	18 (9.0)		
Visit to a dentist				
Yes	46 (23.0)	148 (74.0)	104.13	0.000
No	154 (77.0)	52 (26.0)		

Table 5: Comparing Oral Hygiene Practices between Public and Private school

Oral Hygiene	Public School F=200 (%)	Private School F=200 %	Test Statistics	P Value
Knowledge Assessed				
	86 (43.0)	**73 (36.5)**	**1.31**	**0.184**
Poor	**114 (57.0)**	**127 (63.5)**		
Good				
Practices				
Poor	**46 (23)**	**37 (18.5)**	**1.23**	**0.27**
Good	**154 (77)**	**163 (81.5)**		
DMF Scores				
	64 (32.0)	21 (10.5)		
Decayed	18 (9.0)	35 (17.5)		
Missed	4 (2.0)	23 (11.5)		
Filled				

DISCUSSION

This study presented an overview of the oral hygiene, knowledge and practices of primary school pupils in Gwale LG, Kano. Four hundred primary school pupils from Dandago special primary school and Sheikh Bashir primary school constituted the subjects of the study. The age range of the respondents was 5–19 years..

There is a significant association between gender and oral hygiene ($p<0.05$) with females having better oral hygiene. This finding differs from what was reported from Burkina Faso where males were found to have better oral hygiene as compared to females.[19, 20] Students attending public schools are considered to be from lower socioeconomic background compared to those attending private school. Respondents from the public school (Dandago) have better oral hygiene where 56% have good oral hygiene as against 28% at Sheikh Bashir, however this finding is not significant ($p<0.05$). This finding differs from a study conducted by Olojugba and Lennon on sugar consumption in 5 and 12 year old pupils in Ondo state found out that carries was increasing among children of higher social class families compared to lower social class families.[8] Aderinokun and Oyemade in 1999 in their study of relative influence of socio-demographic variables on oral health and habits of some Nigerian school children reported that children in the lower socio-economic groups in the rural area were found to have poorer oral hygiene and gingival health in comparison to their higher socio-economic counterparts at the university staff school in the urban area. This difference is thought to be due to

differences in their diet and oral hygiene habits.[21]

An association between oral hygiene status of the respondents and parent's educational level was observed ($p<0.05$). Oral hygiene status was found to be better in those children whose parents have formal education. This result is comparable to that of Adenirokun and Oyemada which showed that debris and calculus score recorded in pupils whose mothers were highly education were less when compared with those whose mothers had primary and secondary education only. This implies that of all the variables studied, mothers' educational status appeared to be the single most significant variable influencing oral hygiene.[21]

There was a statistically significant association between respondents' school and knowledge of oral hygiene with pupils from Sheikh Bashir having better knowledge (75.0% versus 57.0%). In a similar study designed to investigate the oral health knowledge, attitudes and preventive practices of third grade school children in Harris County, most children reported "fairly adequate" oral hygiene habits (58%) and oral health knowledge (48%), and "adequate" dietary patterns (59%). Children with inadequate oral health knowledge were twice as likely to have caries as children with adequate knowledge.[28]

Most of the respondents (94%) from Sheikh Bashir used toothbrush and paste to clean their mouth as against 84% of respondents from Dandago. About 46.5% of respondents from Sheikh Bashir brushed their teeth twice per day, four times more than the figures from Dandago school per day. A similar study at Jordan found out that approximately 69% of the study sample brushed their teeth at least twice daily, while 17% reported irregular tooth brushing. Approximately 83% of the subjects reported using a tooth brush and toothpaste to clean their teeth. 2% reported using dental floss, 6% reported using mouthwash, and 7% reported using toothpicks as extra aids for oral hygiene. The study population did not brush their teeth at a similar time during the day. However, most subjects brushed their teeth before going to bed and/or in the morning.[24] Another study carried out in China showed no significant difference between tooth brushing and gender, ($p>0.05$) and nearly half of the respondents claim to brush their teeth at least twice per day and such practice was reported more often in urban areas than in rural areas.[15]

About three quarters (64.5%) of respondents spent less than three minutes to brush their teeth at Sheikh Bashir while 41% spent less than three minutes at Dandago. The respondents' eating habit shows that pupils from the private school ate sweet food more times in a day than those from the public school which explains the high prevalence of dental caries among children with high socio-economic background. This is similar to the findings of Hofstedt and Shelter in a study carried out to determine the oral health status, knowledge and dietary habits among urban and rural 6–7 year old children in Windhoek area, Namibia which showed that the number of children that consumed sweets on daily basis among urban children (62%) was significantly higher ($P <0.01$) compared to the rural children.

Most of the respondents at Sheikh Bashir have parental supervision of oral health. Parents watched and advised 79.5% of the respondents while at Dandago, parents watched and advised 10% of the respondents. Thus this indicates that parents from higher socio-economic class are more educated and more aware of their children's dental hygiene. However this doesn't necessarily translate into better oral hygiene, what is more important is the effectiveness of such cleaning procedure which only comes with good oral health skills[3].

Seventy-two percent of respondents at Sheikh Bashir have visited a dentist at least once while this is not the case at Dandago where only 23% have visited a dentist at least once, the remaining 77% have never visited a dentist.

The oral hygiene habits of the respondents shows that those who use tooth brush to clean their teeth have better oral hygiene in both the public and private schools. There is also a statistically significant association between the frequency of tooth brushing and oral hygiene, being better in those who brush at least twice a day in both the public and private schools. In a study on the effect of frequency of tooth brushing on oral health of 14–16 year olds by Taani DS and al-Wahadni AM, the occurrence of shallow and deep pockets in students who brushed or didn't brush their teeth were minimal (6.6–8.4 per cent). The oral health status among those who did not brush or brushed their teeth on regular or irregular basis was found to be poor and slightly varied. Therefore, more emphasis should be placed on proper oral hygiene. Also, implementation of school based oral health promotion and prevention programs is urgently needed.[32]

Respondents at Dandago who eat candy once in a while have better oral hygiene compared to those that eat candy at least twice a day. There was no significant association between eating sweet food and oral hygiene. There was also no significant association between oral hygiene and taking soft drink. This can be explained by the fact that this study didn't quantify the amount of sweet food, soft drinks or candy taken. The study also didn't take into consideration the interval between intake of these substances and brushing.

CONCLUSION

The study also revealed that parent's educational status, oral hygiene practices, dietary habits and knowledge of oral hygiene greatly influenced the level of dental hygiene. Thus, if more attention is given to dental hygiene particularly through mothers' involvement, it is most certain that there will be a remarkable improvement in dental hygiene among our children.

Conflict of interest: I declare that I have no financial or personal relationship(s) which may have inappropriately influenced me in writing this paper.

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