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Awareness of Oral Health among University of Cape Coast Primary School Pupils

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Abstract :*In 2017, World Oral Health was commemorated in Ghana with a campaign organized by Unilever Ghana and its global counterparts in collaboration with the Ghana Education Service, Ghana Dental Association and the Ministry of Health. The campaign sought to help pupils build better brushing habits forhealthy teeth throughout adulthood. Statistics provided at the event indicated that 40 percent of children of 12 years suffer from decayed, missing and stained teeth as well as bad breath. The organizers also explained to the pupils that these situations could affect their overall general health as well as academic work. Against this backdrop, this work sought to discuss the oral health situation among the pupils of the University of Cape Coast Primary School by assessing the level of knowledge the pupils have concerning oral health, factors that compel the guardians to utilize oral health services for their wards and to suggest ways to promote the situation. A modified questionnaire based on the Dental Health Survey Mainstage Questionnaire was used for the study. From the findings of the study the level of awareness and/or knowledge concerning oral health was not encouraging. Again, the findings did not support the assertion that unavailability of dental facilities is a prime reason for low patronage of dental services in Ghana. Pain also continues to be the compelling community factor. Oral healthcare providers should be resourced and well-motivated to push oral health campaigns.*

Keywords –*Awareness, Dental, Oral health, Pupil*

I. INTRODUCTION

Oral health is an essential aspect of general health and can be defined as "a 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 general well-being" [1]. Oral health knowledge is considered to be an essential prerequisite for health-related practices and studies have shown that there is an association between increased knowledge and better oral health[1].

At the 27th annual congress of the Ghana Dentist Association in 2018, a deputy Minister of Healthcommented that; The prevalence rate for periodontal diseases ranged from 52 percent to 68 percent for periodontal diseases and 12 percent to 24 percent for caries while knowledge and attitudes towards oral health remain poor, with pain

being the greatest compelling community factors for utilization of dental care services[2].According to the World Bank collection of Development Indicators [3], on an average, the starting age of primary school children in Ghana is six years. Primary school education in Ghana is divided into lower and upper primary. Pupils in the lower primary are between the ages of six and eight and the older counterparts are between the ages of nine and eleven.Various literature report of high level of poor oral hygieneamong children of primary school going age. Available statistics indicate that 40% of children aged 12 years and below suffer from decayed, missing, stained teeth and halitosis[4]. Dental diseases are very common in children. Proper digestion, appearance, speech and health are largely dependent on good oral hygiene[5].

Over the years, there has been a lot of progress in improving oral health globally. However, there are still problems in many countries concerning dental health which must be addressed [6] and Ghana is not an exception. Ghana is a country with 140 district hospitals, 357 hospitals and 38 polyclinics operating in the country in addition to other health facilities[7]. The Ghana Dental Association (G.D.A.) issued a communiqué in 2018 appealing to government to integrate dental health into mainstream health service in Ghana. The G.D.A also revealed that there are dental facilities in only 72 districts out of the 275 districts in the country [7]. Unfortunately, most of these facilities are situated in urban areas. This could be a reason for the reluctance of Ghanaians regardinggoing for dental health check-ups. People living in the districts without dental hospitals have largely been denied dental care. The Cape Coast Metropolis has two facilities providing dental care. These facilities include the Cape Coast Teaching Hospital Dental Clinic and the University of Cape Coast (UCC) Dental Clinic. Due to the low number of dental facilities, private organizations and individuals have resorted to providing dental care to patients at costs which are generally higher than the government hospitals. Despite augmenting the number of dental health facilities, it isimportant tonote that access to such facilities remains a challenge. In 2018, the Dean of the Kwame Nkrumah University of Science and Technology Dental School,expressed concerns about the number of registered dentists in Ghana. According to him, the number of registered dentists was close to 400 and was grossly inadequate considering the country's population of about 30 million signifying a doctor to patient ratio of 1:75,000. Unfortunately, most of these dentists are concentrated in the southern parts of the country which are the most developed parts of the nation. This is a situation that could be addressed by establishing dental schools in the northern sector of the country. Due to the acute shortage of Dental Surgeons in Ghana, it is imperative that the populace is very well informed and thought on how to prevent dental pathologies. There must be a strong drive for good Dental health promotion.
Poor oral health is mostly thought to afflict the poor or uneducated [8] and most especially people from less privileged background. However, this study was conducted at the University of Cape Coast Primary School. Pupils in this school are predominantly children of Lecturers and relatively well to do and educated parents. This study seeks to elicit the level of knowledge these pupils have on oral health and the subsequent good dental care thereof and also to find ways of promoting acceptable oral health among the children of the primary school.

II. METHODOLOGY

2.1. Study Population

The study was conducted at the UCC Primary School which is located on the campus of the University. Cape Coast is a Metropolis, the administrative capital of the Central Region of Ghana. The school provides educational facilities to children of employees of the University community as well as children from across the metropolis. The total population of the school is 1,416 pupils. Out of this number a total of 320 pupils in the lower primary participated in the study.

2.2. Study Design

For the purpose of this study a cross sectional study using simple random technique in sampling participants was used for the research. This will ensure that equal chance is given to every pupil to participate in the study.

2.3. Data Collection Method

Data for the study was collected using questionnaires. A modified questionnaire based on the Dental Health Survey Mainstage Questionnaire from the Office of National Statistics, UK [9] was employed in this exercise.

The questions used were a modified version of what has been used in similar studies. The socio-demographic characteristics of the pupils, whether they have had lessons on oral health, eating habits, frequency of cleaning teeth, brand of toothpaste used, frequency of dental check-ups, frequency of eating sweets, candies among others was captured. The questionnaire was pre-tested on pupils not included in the study to verify clarity of instrument or questions asked. The collected data was checked for completeness, accuracy, clarity and consistency.

2.4. Selection Criteria

The study includes only pupils of UCC Primary School who were willing to participate in the study. The study does not include pupils of primary one and two as they were deemed too young to take part in the exercise and pupils who were absent during study period were not included.

2.5. Data Analysis

The data collected was analyzed using Statistical Package for the Social Sciences (SPSS) version 22 for windows. Using the SPSS, the normality of distribution of the oral cleaning materials, knowledge, and effects of poor oral health wasanalyzed using one sample Kolmogorov-Smirnov test (p- value of 0.05).

2.6. Ethical Issues

The study was conducted pursuant to the granting of approval from the Institutional Review Board of the UCC as well as from the authorities of the UCC Primary School. The objectives of the study were well explained to the study participants and consent given on behalf of the pupils by the school authorities. Confidentiality of data collected was assured to both the authorities and participants. No participant was forced to partake in the study. No names were taken.

2.7. Study Assumptions

The population are educated and therefore expected to have enough knowledge on oral health. Also, the parents who are predominantly academics (educated)are expected to prioritize oral health for their wards.

III. RESULTS

The aim of this study was to examine the awareness of oral health amongst pupils of UCC Primary School located in the Central Region, Ghana.

A total number of 320 pupils who were between 8 to 13 years old were sampled for the study with a mean age of 9.5. Majority of the pupils were between 8 years and 10 years and totaling 66.3% of the total population.Pupils in class three had the highest population of 81 pupils. General awareness and dental education of pupils was elicited and Table 1 shows the distribution of dental health knowledge among pupils. The results show that majority (37.8%) of the pupils have very good knowledge of dental health followed by 32.8% who also equally have a good knowledge of dental health while 13.8% had fair knowledge about dental health with 10.9% who had bad knowledge about dental health.

Table 1: Dental health (mouth, teeth & dentures)

	Frequency	**Percentage**
Very good	121	37.8
Good	105	32.8
Fair	44	13.8
Bad	35	10.9

Table 2 shows that 302 of the pupils representing 94.4% responded positive to their ability to brush their teeth without any assistance while only 5.6% are not able to brush their teeth on their own and would require assistance to do so.

Table 2: Pupils' ability to brush their teeth

	Frequency	Percentage
Yes	302	94.4
No	18	5.6

The study also sought to know the type of dental cleaning materials used by pupils. The results in Table 3 shows that most (70.6%) of the pupils use manual toothbrush in their homes while only 1 representing 0.3% each of the pupils use dental floss and mouthwash with 28.8% who use more than one option of manual toothbrush, dental floss and mouthwash.

Table 3: Cleaning materials used by the pupils

Type of material	Frequency	Percentage
Dental floss	1	0.3
Mouthwash	1	0.3
Manual toothbrush	226	70.6
More than one option	92	28.8

There are a number of brands of toothpaste on the Ghanaian market from different manufacturers or producers. To ascertain the brand of toothpaste commonly used by respondents, Fig. 1 shows that Pepsodents was the most widely used as 150 (46.9%) said they use Pepsodent followed by Colgate herbal toothpase which recorded 23.1% with Close up being the next with 19.4% while 10.6% of the pupils said they use different brands of toothpaste.

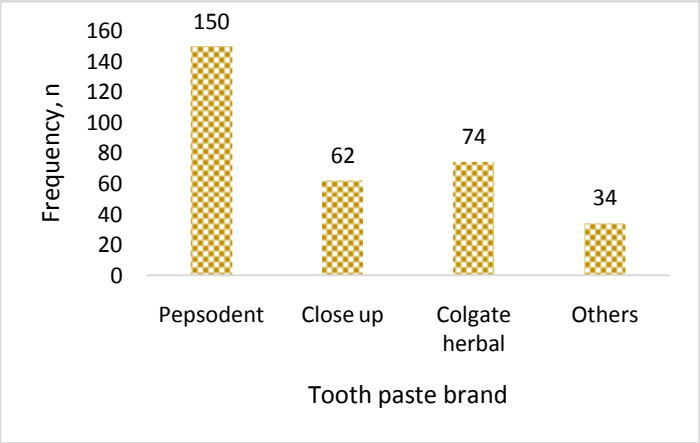

Figure 1: Brand of toothpaste used by pupils

As expected, majority (189 pupils) brushed twice a day with further 6.9% brushing their teeth more than twice a day as against 134 who do not. Also, and 151(47.2%) pupils also claimed they clean their tongues very well while 40.6% did not know whether they clean their tongues well or not with only 12.2% of the pupils who said they do not brush or clean their tongues at all as shown in Table 4.

Table 4: Distribution of teeth cleaning habit

Tooth cleaning habit	Frequency	Percentage
I brush my teeth		
Once a day	109	34.1
Twice a day	189	59.1
More than twice a day	22	6.9
I clean my tongue well		
Yes	151	47.2
No	39	12.2
I don't know	130	40.6

It is interesting to note that majority (64.7%) of the pupils had no idea about false teeth or dentures as against 34.7% who said they know or had heard of it. Table 5 shows that majority (97.5%) of the pupils had natural teeth with only 8 pupils (2.5%) who claimed they were wearing dentures.

Table 5: Knowledge of dentures or false teeth among pupils

Statement	Frequency	Percentage
Heard of dentures		
Yes	110	34.7
No	207	64.7
I'm wearing denture or false teeth		
Yes	8	2.5
No	312	97.5

The study also sought to find out how frequent the pupils visit the dentist. The results as presented in Fig. 3 show that majority (79.3%) of the pupils had not visited the dentist for the past 2 years. 11.6 % of the pupils said they only visit the dentist when they have problems with their teeth or dentures. Only 2.5% occasionally visit the dentist for checkup while 6.6% also claimed they have regular checkup by the dentist.

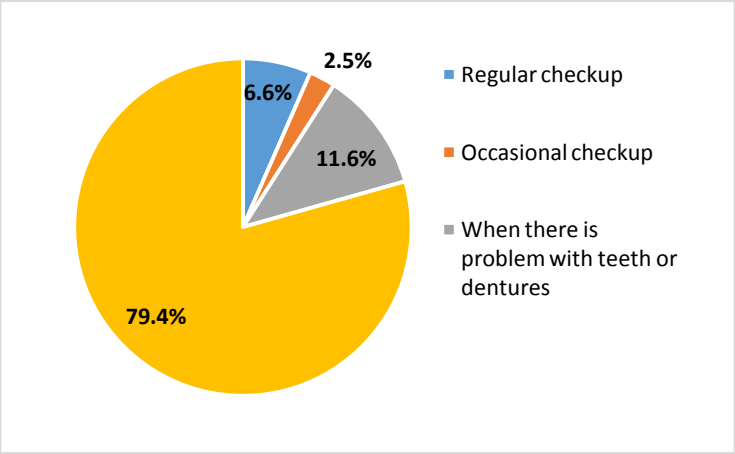

Figure 2: Motivation for visiting the dentist

To ascertain why pupils had not visited the dentist for the past 2 years, majority (43.4%) had no reason while 40.6% stated they do not visit the dentist because there is nothing wrong with their teeth. 5.9% said there was difficulty in accessing the services of a dentist, 2.5% of the pupils also claimed they have bad experience with

the dentist while 2.8% said that it is embarrassing to visit the dentist. Other reasons for not visiting the dentist was 4.7% as shown in Fig. 3.

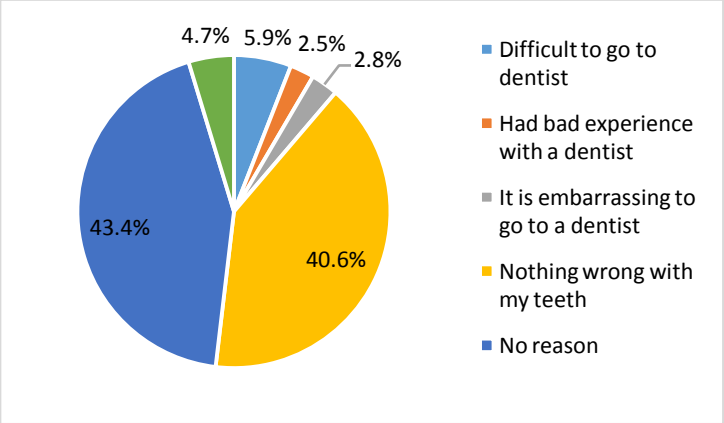

Figure 3: Reasons for not visiting the dentist within the past 2 years

IV. DISCUSSION

4.1. Knowledge on oral health

Prior to administering the questionnaires, we explained to the pupils that the sources of knowledge on oral health could be information from their parents or guardians, the classroom, television, dailies, magazinesand/or peers. Generally, most of the pupils had good knowledge of oral or dental health according to the criteria used in the study. Some of the respondents said they studied oral health related issues occasionallyand geteducated through media advertisement. However, 13.8% of these pupils had only fair knowledge about dental or oral health while 10.9 had bad knowledge of oral health. The level of knowledge with regards to dentures was not vastly different from that on the oral health studies. Majority of the respondents i.e. 64.9% did not know what a denture or false teeth was. Even though the meaning was explained to them prior to the collection of data, majority (64.9%) claimed they had never heard of it. However, 34.75% of the pupils said they know what a denture or false teeth was. Even though the pupils did not study much on oral health the knowledge of oral health was better than their knowledge on dentures.

4.2. Teeth (Natural and false teeth)

About false teeth (even if they do not wear them), 2.5% of the respondents claimed they wore some. The rest i.e. 94.4% claimed they do not have false teeth or dentures. This data corresponds with the 64.2% of respondents who did not have knowledge on dentures. Natural teeth were explained as a tooth you were born with. One percent of respondents claimed to have natural teeth less than 10 with 9.9% claiming to have natural teeth between 10 and 19. Majority of respondents (61.0%) admitted having 20 or more natural teeth. 28.8% of respondents could not give a number to their natural teeth.

4.3. Cleaning of teeth

Most (47.2%) of the respondents claimed that their tongues were well cleaned during brushing with 12.2% claiming otherwise. Also, 40.6% of the pupils did not know whether their tongues were cleaned during brushing of their teeth. 6.9% of respondents admitted to brushing their teeth more than twice in a day. They explained that they brushed their teeth in the morning, before school and evening before going to bed. 34.0% also admitted to brushing once in a day, that is, only in the morning. Majority of them (58.3%) claimed to brush twice daily. This entire data conforms to previous data obtained by Beni [10] that revealed that 59.9% of respondents brushed twice a day.

With regards to dental cleaning materials, 70.6% of respondents claimed that they use only a manual toothbrush and toothpaste for cleaning. 28.8% said they use more than one option that is, dental floss and mouthwash in addition to the toothbrush and toothpaste.Pepsodent® was the mostfrequently used toothpaste amongst the respondents accounting for 46.9% followed by Colgate Herbal® with 23.1% and Close-up® with

19.4%. The remainder of 10.6% used other toothpastes including Longrich® and Oral B®. This result is consistent with the findings by Beni[10]which indicates that Pepsodent® is the major brand of toothpaste used in the capital of the Volta Region, Ho. However,this study found that among the pupils of the UCC Primary and their families in the Central Region of Ghana, they prefer Colgate Herbal® as the second choice of toothpaste as oppose to Close-up® which is the second choice in the Volta Region of Ghana [10]. Significantly, all the toothpastes used by the respondents were fluoride based and approved by the Food and Drugs Authority (FDA).

4.4. Dentistry

Toothache is the maincause that drives Ghanaians to the dental clinic. This is also true according to a study in Ouagadougou [11] where 60% of all complaints at the dental hospital or clinic were as a result of pain or toothache. In another study by Scaglia and Niknamdeh[12], 73.6% of the respondents visited the dentist when in pain. As expected in this study, majority of those who visited dentists were present due to pain or trouble with teeth and/or dentures. About20.7% of respondents claimed to have visited a dentist prior to our study for various reasons. 6.6% of the 20.7% claimed they visited the dentist for regular check-up. The occasional check-up amounted to 2.5% while 11.6 % of the respondents that visited the Dentist did so because of problems with their teeth or dentures. A staggering 79.4% of respondents claimed they had never visited the dentist. This could be because these pupils have not had any serious dental pathology or problems over the past few years.
Earlier report by the Ghana Dental Association (G.D.A.) in 2018 [13] suggests unavailability of dental clinics or dentists as a reason Ghanaians do not visit dental clinic and this is highly debatable. The assertion that people living in areas without dental hospitals did not have dental check-ups due to unavailability of facilities may be disproved based on data produced by this study. The study site was carefully selected due to its proximity to the UCC Dental Clinic (about 300meters apart). When queried on the reasons for not visiting the dental clinic in 2 years, 43.4% admitted to not having a reason at all. 40.6 % claimed they had notvisited the clinic because there was nothing wrong with their teeth. 5.9% claimed it was difficult getting access to dentists. Embarrassment and bad experiences with dentists amounted to 2.8% and 2.4% respectively. Other reasons like expensive dental care, unwillingness of parents to send respondents to dental clinic recorded 4.9%. Only 14% admitted to having a check-up during their visits. 85.5% have not had an oral check-up or examination. This study cements the claim that Ghanaians do not prioritize preventive dental health.

4.5. Effects of Poor Oral Health

Poor oral health is likely to influence the social relations of the respondents especially considering the age groups of the pupils. Gao et al [8] argued the state of teeth is greatly important to children. On the average, 29% of school children have been away from school due to poor oral health according to Pine et al.,[14].
It is important to note that in an interaction with some of the respondents, they admittedthat they have had bloody gum. Others also wanted to be examined by the dentists. Such respondents were advised to talk to their parents. Generally, most of the respondents have not experienced negative effects of poor oral health. However, it is significant to note that the data available also emphasizes that poor dental care can have adverse effects on the social life of pupils.

V. CONCLUSION

This study was conducted in a primary school with children from good homes and therefore, the expectation was that such pupils will have better knowledge and prioritize oral health. However, the level of awareness was not very encouraging. The exploratory study conducted provided enough data to conclude that knowledge on oral health among pupils in UCC Primary School is needs to increase. General sensitization in the classroom is needed. Parents and the general University community must be encouraged to take oral health promotion very seriously and inculcate these habits in their children.About the prioritization of oral health, Ghanaians in general do not give much attention to their dental health. The findings of this study corroborated previous study assertions that dental pain is the major factor that compels people to visit the dental clinic, a situation that is not desirable and people must be encouraged to prevent the incidence of caries and other acute dental conditions. The findings also revealed that the claim that a lack of dental clinic isthe main reason for poor oral care may not

be entirely accurate.

The dental department of UCC hospital will be encouraged to embark on an outreach to undertake physical examination of the oral cavities of the pupils to ascertain the prevalence if any of the various dental pathologies thereof.

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Conflict of Interest

The authors declare that they have no competing interests.

Funding: Nil

Data Availability Statement

The data used to support the findings of this study may be released upon application to the Head, Department of Imaging Technology & Sonography, University of Cape Coast.

Postal Address: P.M.B. University Post office, Cape Coast, Ghana

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