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## **School-Based Oral Health Education and Dental Disorders among Pupils in Big Qua Primary School Calabar, Cross River State of Nigeria.**

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### **ABSTRACT**

The research project examined oral health education and dental disorders among pupils in Big Qua Primary School Calabar, Cross River State of Nigeria. A descriptive survey design was used to conduct the study. Three research questions as well as three hypotheses were formulated to guide the study. Instrument for data collection was a structured questionnaire by the researcher validated with face validation and reliability determined with Cronbach's alpha formula which revealed 0.76 coefficient. The hypotheses were tested with chi-square ( $X^2$ ) at 0.05 confidence level. Findings of the study revealed that there is significant relationship ( $P < 0.05$ ) between oral health knowledge and dental disorders among pupils in Big Qua Primary School, Calabar. There is a significant relationship between oral health behaviours and dental disorders among pupils in Big Qua Primary School, Calabar. There is significant relationship between oral health knowledge and incidence of school-based oral diseases such as angular stomatitis, dental caries and oral thrush. The summary of the results presented in table 5, shows that  $X^2$  calculated value of 615.065 is higher than the table value of 21.03 at  $P > 0.01$  showing significant incidence of school-based oral diseases such as angular stomatitis, dental caries and oral thrush among pupils in Big Qua Primary School, Calabar. On this note, the null hypothesis was rejected while the alternative hypothesis was accepted. This means that there is a significant incidence of school-based oral diseases such as angular stomatitis, dental caries and oral thrush among pupils in Big Qua Primary School Calabar, Cross River State of Nigeria.

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### **INTRODUCTION**

Oral health is essential to general health and quality of life. It is a state of being free from mouth and facial pain, oral and throat cancer, angular stomatitis, oral infection and sores, periodontal (gum) disease, tooth decay, tooth loss, and other diseases and disorders that limit an individual's capacity in biting, chewing, smiling, speaking, and psychosocial wellbeing (World Health Organization WHO, 2017). Oral health is often taken for granted, but it is an essential part of our everyday life. Good oral health enhances our ability to speak, smile, taste, chew, swallow, and convey our feelings and emotions through facial expressions. However, oral diseases, which range from cavities to oral cancer, cause pain and disability for millions in the world (Mbotu, 2016). Health is a common theme in most cultures and is a fundamental human right without distinction of race religion, and political belief, economic and social condition (WHO, 2018). Oral health is a standard of health of the mouth and a related tissue that enables an individual to eat, speak and socialize without active disease, discomfort or embarrassment and contributes to the general well being. It is concerned with maintaining the health of craniofacial complex, the teeth and gums, as well as the tissue of the face and head that surrounds the mouth (Yewe-Dyer, 2018). Oral health is an integral part of general health (WHO, 2018).

Oral diseases are major health problem, especially in children, owing to their high prevalence and incidence in all the regions of the world. Health education programs are not isolated events but educational aspects of any curative, preventive and promotional health activity (Jong, 2018). Health education for the school age child is a specialized field within the broad discipline of education. No documented study of oral health education program for school children have been reported till date in Big Qua Community of Calabar Municipality Cross River State. Hence, the present study was undertaken to evaluate the impact of school-based oral health education and dental disorders among pupils in Big Qua Primary School, Calabar, Cross River State of Nigeria.

#### **Statement of the Problem**

Dental disorder today is one of the most common health problems that affect the health of school children. Today, millions of children are needlessly afflicted with dental disease because they cannot obtain timely preventive, educational or treatment services. In this study, the researcher intends to examine school-based oral health education and dental disorders among pupils in Big Qua Primary School Calabar, Cross River State. Useful recommendations will be made to curb this menace in the area of study.

### Objective of the study

The main purpose of this study is to examine school-based oral health education and dental disorders among pupils in Primary School Calabar, Cross River State. The specific objectives are to:

1. examine oral health knowledge of pupils and dental disorders in Big Qua Primary School Calabar, Cross River State
2. determine oral health behaviours adopted by pupils in Big Qua Primary School Calabar, Cross River State
3. examine oral health knowledge and incidence of school based oral diseases such as stomatitis, dental carries and oral thrush among pupils in Big Qua Primary School Calabar Cross River State,

### Research Questions

To guide this study, the following research questions were raised:

1. What is the relationship between oral health knowledge and dental disorders among pupils in Big Qua Primary School Calabar?
2. What is the relationship between oral health behaviours and dental disorders among pupils in Big Qua Primary School Calabar?
3. What is the relationship between oral health knowledge and incidence of school based oral diseases such as stomatitis, dental carries and oral thrush among pupils in Big Qua Primary School Calabar

### Research Hypotheses

The following hypotheses were formulated for the study:

1. There is no significant relationship between oral health knowledge and dental disorders among pupils in Big Qua Primary School Calabar, Cross River State
2. There is no significant relationship between oral health behaviours and dental disorders among pupils in Big Qua Primary School Calabar, Cross River State.
3. There is no significant relationship between oral health knowledge and incidence of school based oral diseases such as stomatitis, dental carries and oral thrush among pupils in Big Qua Primary School Calabar Cross River State,

### Significance of the Study

Findings of this study will be of benefit to parents, children, health educators and school authority in the following ways:

To parents in the community, findings of this study will help them understand the health complication associated with oral disorders thereby helping them to take good care of the dental health of their children and others around them.

To the children (primary school pupil), findings of this study will enable them to have more knowledge about oral disorder, thereby enabling them to adopt healthy oral behaviours.

Finding of the study will assist curriculum planners of various primary schools to increase their curriculum content on oral health with current information as it concerns oral disorders and health.

Finally, findings of the study will serve as a useful literature for further research works on dental disorders.

### Scope of Study

The scope of study is school-based oral health education and dental disorders among primary school pupils. It is also delimited to Big Qua Primary School Calabar, Cross River State, Nigeria. The study was finally confined to the common types of dental disorders such as angular stomatitis, dental caries and oral thrush which were adopted as sub-variables for this study.

### Operational definition of terms:

**Oral hygiene:** This is the practice of keeping the teeth and mouth clean to prevent dental problems by brushing the teeth twice daily and rinsing the mouth with water after eating.

**Dental health:** The absence of dental carries, stomatitis and oral thrush

**Dental disorders:** This includes dental carries, oral thrush and stomatitis.

**Pupils:** Pupils here refers to children in primary four to six in Big Qua Primary School, Calabar.

**Dental carries:** This is a dental infection that is characterized by grey, brown or black spots appearing on the teeth, bad breath and tooth sensitivity.

**Oral thrush:** This is a fungal infection that is characterized by white or yellow patches of bumps on the inner cheeks, tongue, tonsils, gums or lips which slightly bleeds if the bumps are scraped

**Angular Stomatitis:** This is a condition caused by painful cuts or sores outside the mouth. Usually at angular corner of the mouth.

**Oral Health Education:** This is a process through which an individual, group or community is being given the knowledge to be aware of the danger and effects of oral diseases and prevention measures

## RESEARCH METHODOLOGY

### Research design

For purpose of achieving the desired objective of this study, descriptive survey design was used. According to Etuk (2017), descriptive survey research is a method that is used to solicit responses from persons believed to have the desired information by asking questions. The design helped the researcher to ask questions, get answers and draw generalization based on the respondents' data collected. Survey research was chosen for this work because it is an efficient means of collecting data from a specific number of respondents representing the entire population.

### Population Area Description

The study was carried out in Big Qua Primary School Calabar, Cross River State. Big Qua Primary School is situated in a moderately urban environment with basic social amenities including electricity and portable drinking water. The school is located after Big Qua Town Hall by Good-luck Jonathan By-Pass, Calabar Municipality, Calabar Municipality lies between latitude 40.15 and 50.15N and longitude 80.15 and 80.25E. It is bounded in the north by Odukpani Local Government Area, in the east by Akpabuyo Local Government Area, in the south by Calabar South Local Government Area and in the west by the Calabar River.

Calabar Municipality has a moderate rainfall and sunshine which makes up the three main seasons in the area namely; the rainy, dry and harmatan seasons. The rainy season usually occurs from April - September with an average rainfall of about 58% a year and the dry season begins from October to March/April. The harmatan season is usually brief and mild with low sun intensity. In terms of religion, the people of Big Qua are predominantly Christians, though some Muslims and traditionalists can still be found. in the area. The two major languages spoken by the people of Big Qua are Efik and English. The Local Government has a population of 179,392 people (2006 census) with a total area of 1142km<sup>2</sup>.

### Population of study

The population of study comprised of all pupils in Primary 4 to 6 in Big Qua Primary School Calabar, Cross River State. From the pre-field survey by the researcher, available data from Big Qua School Register (2020) reveals that there are a total of 400 pupils as population of study for this research.

**Table 1: Sample population**

Random No.	Name of units/Class	Population of Pupils in each class
01	Primary 4	112
02	Primary 5	136
03	Primary 6	152
	Total	400

Source: School Register (2020).

### Sampling method/techniques

Simple random sampling technique was used for this study. Simple random sampling technique is a means by which researchers give every member of his/her population equal and independent opportunity of being selected.

The main purpose of using simple random sampling technique was to compose a sample that will yield research data that can be generalized to larger population. The technique that was employed by the researcher was the hat and draw (balloting) method. Here the researcher wrote the names of all the classes in the school on a sheet of paper, roll each sheet into a paper ball, mix the paper balls well in a container (hat) and blindly drew the required number of classes. In the same manner, the required sample was randomly drawn for the study.

Using Taro Yamane's formula to determine the sample size, the researcher arrived at a total of 200 pupils as the sample size for this study: This formula was used since the population of the study is known or finite.

$$n = \frac{N}{1 + N(e)^2}$$

Where

n	=	Sample size
N	=	Population size
e	=	Level of precision (5%)

$$n = \frac{400}{1 + [400 \times (0.05)^2]}$$

$$n = \frac{400}{1 + [400 \times 0.0025]}$$

$$n = \frac{400}{1 + [400 \times 0.0025]}$$

$$n = \frac{400}{1 + 1}$$

$$n = \frac{400}{2}$$

$$n = 200 \text{ pupils}$$

### Sample

The sample size for the study was 200 pupils obtain from the sampled classes in Big Qua Primary School Calabar, Cross River State. 50% of the total population of study was used as sample.

### Instrument for data collection

Data for this study was obtained from respondents using School-Based Oral Health Education and Dental Disorders (SOHEDD) Questionnaire. The questionnaire was constructed by the researcher and has 4 major sections:

Section A: Demographic data of respondents

Section B: Questions on oral health knowledge (item 1-5)

Section C: Questions on oral health behaviour (item 6-10)

Section D: Questions on oral disorders (Item 11-15)

A total of 15 items were raised in Section B of the questionnaire. The first five items examined oral health knowledge and dental disorders among pupils, the next five items addressed oral health behaviours and dental disorders among pupils while the last five items focused on the incidence of school based oral diseases such as stomatitis, dental carries and oral thrush. More so, the items were designed on a 4-point Likert scale format for respondents to indicate their degree of agreement or disagreement as follows:

Strongly Agree	(SA)	-	4 point
Agree	(A)	-	3 point
Disagree	(D)	-	2 point
Strongly Disagree	(SD)	-	1 point

### Validity of Instrument

To ensure validity of instrument, face validity was adopted for the study. In this case, the researcher submitted the instrument for thorough assessment by the research supervisor. All contributions by the supervisor were taken note of in the final draft of the instrument.

### Reliability of instrument

The Cronbach's alpha reliability method was adopted in this study. This is because the method enabled the researcher to ascertain the internal consistency of the questionnaire which is made up of multiple Likert-type scales and items. The sample size for the study is 200 pupils, therefore, the researcher made use of 10% of this amounting to 20 pupils for the reliability exercise. The researcher moved to Calabar South Local Government Area and used pupils from Government Primary School Obufa Esuk for the reliability test. The researcher will administer 20 copies of questionnaire to the 20 pupils in Government Primary School Obufa Esuk. Results from the 2 sets of data were statistically compared using Pearson Product Moment Correlation and found to have good correlation within the limit of reliability. Hence, the instrument was adopted for the main research study.

### Method of data collection

The researcher obtained permission from the Head Teacher of Big Qua Primary School to engage children in the selected classes (Primary 4-6) in the research study. The researcher administered copies of the questionnaire to the pupils during their break period. This period was most suitable for the exercise because it was possible to have a good number of pupils to partake in the study at this time. The research made use of two (2) research assistants. It took a duration of 2 weeks to administer and retrieve copies of questionnaire from the respondents.

### Procedure for data analysis

The total responses for each item of respondents were summed up and total scores assigned accordingly for computation. These scores were collected from each grouped respondents to the variables and summarized to simplify and aid the data analysis of the hypotheses.

The method of data analysis was based on each hypothesis. Each hypothesis is restated here and the variable in it are identified and appropriate statistical analysis technique for testing it was given. All hypotheses were tested at 0.05 confidence level

**Hypothesis one**

There is no relationship between oral health knowledge and dental disorders among pupils in Big Qua Primary School Calabar

Independent variable: oral health knowledge

Dependent variable: Dental disorders among pupils

The statistical tool for analysis: Chi-square ( $X^2$ )

**Hypothesis two**

There is no significant relationship between oral health behaviours and dental disorders among pupils in Big Qua Primary School Calabar

Independent variable: oral health behaviours

Dependent variable: Dental disorders among pupils

The statistical tool for analysis: Chi-square ( $X^2$ )

**Hypothesis three**

There is no significant knowledge and incidence of school based oral diseases such as stomatitis, dental carries and oral thrush among pupils in Big Qua Primary School Calabar

Independent variable: incidence of school base oral diseases

Dependent variable: Dental disorders among Pupils

The statistical tool for analysis: Chi-square ( $X^2$ )

**Ethical consideration**

A high level of ethical conduct was maintained throughout the research study. In particular is the fact that respondents were not compelled to take part in the research study. Informed consent was obtained from the pupils. Again, the researcher and research assistants explained areas where clarifications were required by the respondents with no form of bias or disrespect.

**RESULTS AND DISCUSSION**

This is concerned with the statistical analysis of data collected for this study. This also focused on the presentation, interpretation and discussion of the results that were obtained from the analysis of the data collected for this study. This was done hypothesis by hypothesis with each hypothesis tested at 0.05 confidence level

**Data presentation on respondent's demographic variables**

**Table 2: Respondent's demographic information**

Variable	Frequency	Percentage
<b>Age</b>		
6-8 years	40	20
9-11 years	92	46
12 years and above	68	34
<b>Total</b>	200	100
<b>Gender</b>		
Male	70	35
Female	130	65
<b>Total</b>	200	100
<b>Class level</b>		
Primary 4	56	28
Primary 5	68	34
Primary 6	76	38
<b>Total</b>	200	100

Table 2 above indicates that 40 (20%) of the respondents were between the ages of 6-8 years, 92 (46%) were between the ages of 9-11 years, while 68 (34%) were 12 years and above. On gender, 70 (35%) of the respondents were male while 130 (65%) were female. In regards to class level, 56 (28%) of the respondents were in primary 4; 68 (34%) were in primary 5 while 76 (38%) were in primary 6.

**Analysis of Research Hypothesis**

**Hypothesis 1**

Hypothesis one stated that there is no significant relationship between oral health knowledge and dental disorders among pupils in Big Qua Primary School Calabar. Chi-square ( $X^2$ ) was employed to test data collected in respect to this hypothesis. The hypothesis was tested at 0.05 confidence level. The summary of result is as presented in table 3.

**Table 3:**

**Chi-square ( $X^2$ ) analysis of the relationship between oral health knowledge and dental disorders among pupils in Big Qua Primary School Calabar**

Questions			Responses					Total
			SD	D	A	SA	33.00	
Q1	Count		4	8	37	151	0	200
	Expected Count		4.6	14.0	75.8	105.4	.2	200.0
Q2	Count		2	6	140	51	1	200
	Expected Count		4.6	14.0	75.8	105.4	.2	200.0
Q3	Count		4	7	46	143	0	200
	Expected Count		4.6	14.0	75.8	105.4	.2	200.0
Q4	Count		2	41	108	49	0	200
	Expected Count		4.6	14.0	75.8	105.4	.2	200.0
Q5	Count		11	8	48	133	0	200
	Expected Count		4.6	14.0	75.8	105.4	.2	200.0
<b>Total</b>	Count		23	70	379	527	1	1000
	Expected Count		23.0	70.0	379.0	527.0	1.0	1000.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
<b>Pearson Chi-Square</b>	289.738 <sup>a</sup>	16	.000
<b>Likelihood Ratio</b>	277.798	16	.000
<b>N of Valid Cases</b>	1000		

a. 10 cells (40.0%) have expected count less than 5. The minimum expected count is .20.

The summary of results presented in Table 3 shows that  $X^2$  calculated value of 289.738 is higher than the table value of 21.03 at  $P < 0.01$  implying that good oral health knowledge helps in the prevention of dental disorders among pupils in Big Qua Primary School Calabar. On this note, the null hypothesis was rejected while the alternate hypothesis was upheld. This means that, there is a significant relationship between oral health knowledge and dental disorders among pupils in Big Qua Primary School Calabar.

**Hypothesis 2**

Hypothesis two stated that there is no significant relationship between oral health behaviours and dental disorders among pupils in Big Qua Primary School Calabar. Chi-square ( $X^2$ ) was employed to test data collected in respect to this hypothesis. The hypothesis was tested at 0.05 level of significant. The summary of result is as presented in table 4.

**Table 4:**

**Chi-square ( $X^2$ ) analysis of the relationship between oral health behaviours and dental disorders among pupils in Big Qua Primary School Calabar**

Questions			Responses					Total
			SD	D	A	SA	33.00	
Q1	Count		4	8	37	151	0	200
	Expected Count		4.6	14.0	75.8	105.4	.2	200.0
Q2	Count		2	6	140	51	1	200
	Expected Count		4.6	14.0	75.8	105.4	.2	200.0
Q3	Count		4	7	46	143	0	200
	Expected Count		4.6	14.0	75.8	105.4	.2	200.0
Q4	Count		2	41	108	49	0	200

		Expected Count	4.6	14.0	75.8	105.4	.2	200.0
	Q5	Count	11	8	48	133	0	200
		Expected Count	4.6	14.0	75.8	105.4	.2	200.0
<b>Total</b>		Count	23	70	379	527	1	1000
		Expected Count	23.0	70.0	379.0	527.0	1.0	1000.0

## Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
<b>Pearson Chi-Square</b>	289.738 <sup>a</sup>	16	.000
<b>Likelihood Ratio</b>	277.798	16	.000
<b>N of Valid Cases</b>	1000		

a. 10 cells (40.0%) have expected count less than 5. The minimum expected count is .20.

The summary of results presented in Table 4 shows that  $X^2$  calculated value of 289.738 is significant at  $P < 0.01$  since it is higher than the table value of 21.03. This shows a significant relationship between oral health behaviours and dental disorders among pupils in Big Qua Primary School Calabar. On this note, the null hypothesis was rejected while the alternate hypothesis was upheld.

**Hypothesis 3**

Hypothesis three states that there is no significant incidence of school based oral diseases such as stomatitis, dental carries and oral thrush among pupils in Big Qua Primary School Calabar. Chi-square ( $X^2$ ) was employed to test data collected in respect to this hypothesis. The hypothesis was tested at 0.05 level of significant. The summary of result is as presented in table 5.

**Table 5:**

**Chi-square ( $X^2$ ) test of the incidence of school based oral diseases such as stomatitis, dental carries and oral thrush among pupils in Big Qua Primary School Calabar**

	Question		Responses					Total
			SD	D	A	SA	33.00	
<b>s</b>	Q1	Count	1	5	30	164	0	200
		Expected Count	3.2	14.2	70.8	111.6	.2	200.0
	Q2	Count	2	2	161	34	1	200
		Expected Count	3.2	14.2	70.8	111.6	.2	200.0
	Q3	Count	2	4	21	173	0	200
		Expected Count	3.2	14.2	70.8	111.6	.2	200.0
	Q4	Count	0	54	121	25	0	200
		Expected Count	3.2	14.2	70.8	111.6	.2	200.0
	Q5	Count	11	6	21	162	0	200
		Expected Count	3.2	14.2	70.8	111.6	.2	200.0
<b>Total</b>		Count	16	71	354	558	1	1000
		Expected Count	16.0	71.0	354.0	558.0	1.0	1000.0
<b>Chi-Square Tests</b>								
		Value	df	Asymp. Sig. (2-sided)				
	<b>Pearson Chi-Square</b>	615.065 <sup>a</sup>	16	.000				
	<b>Likelihood Ratio</b>	613.491	16	.000				
	<b>N of Valid Cases</b>	1000						

a. 10 cells (40.0%) have expected count less than 5. The minimum expected count is .20.

The summary of results presented in Table 5 shows that  $X^2$  calculated value of 615.065 is higher than the table value of 21.03 at  $P < 0.01$  showing significant incidence of school based oral diseases such as angular stomatitis, dental carries and oral thrush among pupils in Big Qua Primary School Calabar. On this note, the null hypothesis was rejected while the alternate hypothesis was upheld. This means that, there is significant incidence of school based oral diseases such as stomatitis, dental carries and oral thrush among pupils in Big Qua Primary School Calabar.

## Discussion of findings

This section discusses the findings made in this research.

### Oral health knowledge and dental disorders

The null hypothesis directing the first variable was rejected by the analysis, maintaining that there is significant relationship between oral health knowledge and dental disorders among pupils in Big Qua Primary School Calabar. This implies that poor oral health knowledge leads to dental disorders among pupils in Big Qua Primary School Calabar.

This finding is in tandem with Oliveira, Narendran and Williamson (2017) who stated that school children with inadequate oral health knowledge are twice as likely to have oral disorder as school children with adequate knowledge.

This finding also corroborates Attaullah and Alikhan (2017) who revealed that an increase in knowledge about risk factors for oral disease and strong knowledge of oral health leads to better oral care practices that aim to promote healthy habits.

Furthermore, the finding is in tandem with Blaggana, Grover, Kapoor, Blaggana, Tanwar, Kaur and Haneet (2016) who posited that the efficacy of dental health education can be increased only if health programs are tailored to directly impinge on attitudes of targeted population, especially school children in whom healthy practices can be inculcated easily and be sustained for long times. Blaggana *et al.*, (2016) conducted a cross-sectional survey amongst 1027 secondary level school students, in Chandigarh, India. After obtaining informed consent subjects were administered pretested self-administered questionnaire addressing demographics, knowledge, attitude and practice behaviour of participants. Frequency analysis was done using descriptive statistics. Findings of the survey revealed that only 40% subjects brushed twice daily. About 17% reported use of dental floss and 20% used either mouthwash or tongue cleaner as adjuncts. A total of 58% had knowledge that infrequent brushing led to dental caries, staining of teeth, dental plaque and bleeding from gums. Most of them knew sweets (92.7%) and soft drinks (67.8%) affected dental health. Only 12.9% visited dentist regularly after every 6-12 months.

### Oral health behaviours and dental disorders

The analysis conducted on hypothesis two rejected the null hypothesis directing the study. The alternate hypothesis was retained that there is significant relationship between oral health behaviours and dental disorders among pupils in Big Qua Primary School Calabar. This implies that good oral health behaviours like regularly brushing, flossing, avoidance of sweet and soft drinks consumption and visiting a dentist every 6-12 months helps in the prevention of dental disorders among pupils.

This finding is supported by Peltzer and Pengpid (2017) who pointed out that poor oral health is still a major burden for populations throughout the world, particularly in developing countries. Results indicated that 0.20% of students reported to brush their teeth twice or more times a day, 28.8% about once a day and 4.00 never. Regarding dental check-up visit, 16.3% reported twice a year, 25.6% once a year, 33.9% rarely and 24.3% never. In a multivariate logistic regression analysis, being a male, coming from a wealthy or quite well of family background, living in low income or lower middle income, weak beliefs in the importance of regular tooth brushing, depression and PTSD symptoms, tobacco use and frequent gambling, low physical activity, and low daily meal and snacks frequency were associated with inadequate tooth brushing (<twice daily). Further, being a male, older age, coming from a not well off or poor family background, living in low income or lower middle income, weak beliefs in the importance of regular tooth brushing, PTSD symptoms, illicit drug use, low physical activity, and low daily snacks frequency, skipping breakfast and inadequate fruit and vegetables consumption were associated with less than one annual dental care visit. One the whole, oral health behaviour among the students was found to be low.

This finding is also supported by Mehta and Kaur (2017) who observed a low level of knowledge and practices among the children, as only 25% of the participants cleaned their mouth more than once a day; 45.5% of the children had some problem with their teeth and/or gums, and only 35.9% visited the dentist for treatment.

### Incidence of school based oral diseases such as angular stomatitis, dental carries and oral thrush among pupils

The null hypothesis which states that there is no significant incidence of school based oral diseases such as stomatitis, dental carries and oral thrush among pupils in Big Qua Primary School Calabar, was rejected in the analysis. Thus, the alternative hypothesis was upheld which states that there is significant incidence of school based oral diseases such as angular stomatitis, dental caries and oral thrush among pupils in Big Qua Primary School Calabar. This implies there is incidence of oral diseases such as stomatitis, dental carries and oral thrush among pupils in Big Qua Primary School Calabar.

This finding is supported by Jadad & McQuay (2019) who pointed out that approximately 2.43 billion people (36% of the population) have dental caries in their permanent teeth worldwide. In baby teeth it affects about 620 million people or 9% of the population. It is the primary, pathological cause of tooth loss in children. This finding is also in line with Umeh and Okolocha (2015) in a study on "the Occurrence of Oral Thrush Yeasts among School Children in Onitsha Urban, Anambra State, Nigeria". Result of the study showed that the infection occurred more in younger children than in older children. There was a significant difference between the occurrence of the thrush yeasts in younger and in older children ( $p < 0.05$ ). There was no significant difference between male and the female pupils in being susceptible to the oral thrush yeasts ( $p < 0.05$ ). The problem posed by oral thrush to the children was highlighted and control measure recommended to reduce incidence and spread.



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## CONCLUSION AND RECOMMENDATIONS

### Conclusion

From the findings of the study, the following conclusions were made, that:

1. There is significant relationship between oral health knowledge and dental disorders among pupils in Big Qua Primary School Calabar
2. There is significant relationship between oral health behaviours and dental disorders among pupils in Big Qua Primary School Calabar
3. There is significant incidence of school based oral diseases such as stomatitis, dental carries and oral thrush among pupils in Big Qua Primary School Calabar

### Recommendations

From the conclusion so made, the following recommendations were made, that:

- Parents/guardians should ensure proper oral check up of their children in order to ensure early and timely detection of oral disorders.
- Parents/guardians should report promptly to the hospital with any symptom regarding any discomfort in the mouth of their children.
- Health workers and other medical personnel should help educate the community members through campaigns on ways to promote good oral hygiene among children of all ages.
- Curriculum planners should add to their curriculum content methods of preventing oral disorders among children in all class levels.
- Government should provide free treatment for all forms of oral disorders among children in all class levels.
- Government and non-governmental organizations should organize seminars and workshops on the ways to reduce oral disorders among children of all ages.
- Government should employ and post school health nurses to all schools for regular inspection and treatment of dental disorders.

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