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An Outcome of Nursing Intervention on Prevention of Dental Caries among Primary School Children in Ikenne Local Government Area in Ogun State

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Abstract
It is observed that most children with poor oral hygiene are having dental caries which predisposes them to other forms of illness as a result of neglect of oral hygiene. Although dental caries is common among children, it can be prevented if children are taught dental hygiene of brushing the mouth after food to avoid aggravating the micro-organisms that inhabit the oral cavity thus causing teeth decay and mouth odor. This study assessed the outcome of nursing intervention on prevention of dental caries among primary school children in Ikenne Local Government Area in Ogun State, Nigeria. It utilized quasi-experimental design to assess the knowledge of school children about dental caries. The design involved administering a pre and post intervention questionnaire to collect data from school children about dental caries and care of the teeth. A total of 91 pupils were selected from each school by simple random sampling using the ballot method.Data were analyzed by the use of SPSS version 23.0. The analysis involved frequency, percentage distribution as well as a paired t-test for mean differences between the pre and post intervention stages. Results showed that there was a significant relationship between nursing intervention on prevention of dental caries and the outcome of nursing intervention among primary school children. Health professionals, especiallynurses,can play a significant role in enhancing children's knowledge and practice of dental hygiene.

Key words**: **Dental caries, dental hygiene, nursing intervention, prevention of dental caries

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I. Introduction

Dental caries is an infectious disease that occurs in the mouth, affecting the tooth and its structures. It generally occurs when cariogenic bacteria settles on the enamel surface of the tooth due to the presence of fermented food debris from dietary carbohydrate often refined sugar and demineralizes and damages the hard tissues of the teeth (Irvine, Holve, Krol & Schroth, 2014). The American Academy of Pediatrician Dentistry (AAPD, 2014) describes Dental caries as a dietary carbohydrate modified infectious disease. The World Health Organization (WHO, 2016) stressed that the disease affects between 60%-90% of school children, and also causes a broad loss of natural teeth in older people globally.

Caries is defined as a disease that is composed of two or more factors that involves a precise oral micro flora, diet, and a vulnerable host. Several causes can promote the development of caries process at various stages by many ranges of bacteria and not only *Mutans* streptococci *(MS)* or *lactobacilli (LB)* (Tanner, Kressirer, & Faller, 2016), and a fungus such as Candidaalbicans can stimulate the cariogenic bacteria virulence of dental plaque (Koo & Bowen, 2014). Other risk factors comprise dental arrangement, numerous deep grooves of the teeth, trapped food between the teeth and poor oral hygiene. The bacterial agent such as Mutans Streptococci (MS) indicted in the cause of dental caries commonly spread among school children.

World Health Organisation (2015) report that 244,571,686 children from age 6 - 12years worldwide, have decay, missing and filled teeth (DMFT). Abiola, Afolabi, Ekekezie, and Braimoh (2016) conducted apilotstudy on dental caries and nutritional status of school children in Lagos, Nigeria and reported 70.1% of school children with DFMT, 79% with dental caries and one lesion, while 74% has dental caries with two lesions.Evidence shows that the main causative agents for the development of dental caries are *Mutans streptococci*, *Lactobacilli* and other bacteria naturally found in the oral cavity (Marsh, Head, & Devine, 2015). Other factors responsible for development of dental caries arise within the person and are referred to as host factors. These include the tooth arrangement, saliva, unhealthy dietary intake and pathological factors. The host factors are also dental caries biological risk indicators, comprising diet, saliva, plaque, and genetics, while other

risk factors include socioeconomic factors, besides protective factors such as oral hygiene and exposure to fluoride (WHO, 2016).

A lack of knowledge of proper dental care or child centered education and standard tooth brushing technique is shown to be associated with dental caries among primary school children (Adegbulugbe & Soroye, 2016). Therefore, assessing pupils for dental caries risk, and creating awareness through teaching them ideal tooth brushing techniques and encouraging brushing of tooth twice daily after meals, morning and evening couldprevent dental caries. Teaching would involve demonstrating to the pupils how to use tooth paste containing at least 1450-1500ppm Fluoride in a pea size amount with minimal rinsing after brushing.Nurses are known to be the first contact for patients therefore, they are better placed to identify the risk of dental caries in them (Nadia & Barnes, 2018). In the same vein, school nurses can identify caries in primary school children through interaction with them and provide intervention on prevention.

Among the responsibilities of the school nurse is counselling and educating the children on regular brushing of their teeth after all dietary intake and encourage dental clinic visit every six months to prevent the development of cariogenic microbes in the oral cavity. This study therefore, assessed the outcome of nursing intervention on prevention of dental caries among school children of ages 6-12 years in Ikenne Local Government Primary Schools.

II. Method

A quasi-experimental design was used to conduct an intervention study among primary school children in selected Primary Schools in Ikenne Local Government Area of Ogun State. The design involved administering a pre-intervention questionnaire to the children on the knowledge of school children about dental caries. Subsequently, an educational intervention in the form of teaching the school children about prevention of dental caries was carried out. This involved lessons on causes and prevention of dental caries. Practical aspects of the lessons involved the demonstration of how to brushthe teeth which children were encouraged to practice at home twice daily after eating in the morning and evening. An interval of two weeks was given following the teaching intervention, after which a post-intervention questionnaire was administered to all the children that participated in the teaching session. The primary schools for the study from Ikenne LGA were Ansar-ud-deen Primary School, Ilishan-Remo and Salvation Army Primary School, Iperu Remo which were selected through simple random sampling technique.The population of the study was 281 of primary 3 to 6 pupils, comprising of 141 pupils from Ansar-ud-deen Primary school, Ilishan-Remo and 140 pupils from Salvation Army Primary School, Iperu Remo.

Sampling technique and Sample Size

The study utilized a multistage sampling technique involving ballot method for selecting the primary schools and participants for this study. In the first stage of the sampling technique, all public primary schools in Ikenne Local Government were listed and each school was written on a separate piece of paper and squeezed. All the squeezed papers containing the names of all the primary schools in Ikenne LGA were put into an empty container and shaken together. A decision was made that the first picked squeezed paper will be the intervention group while the second squeezed paper picked will be the control group. The researcher was blindfolded and asked to pick the papers while the supervisor watched to ensure that the schools were picked randomly. The researcher picked the first paper and gave it to the supervisor who opened it and announced it as Salvation Army primary school Iperu Remo which was the intervention group as agreed from the onset. The process of selection was repeated and this time, the name on the second paper that was picked was Ansar-ud-deen Primary School, Ilishan Remo which became the control group.

The second stage involved the selection of pupils from primary 3-6 classes using purposive technique with consideration to the pupils' ability to read and answer the questionnaire. The third stage involved selecting participants from each of the classes in the selected schools balloting method that allowed the school children to pick either YES or NO. The total of 91 papers with YES written on them were squeezed and 50 papers with NO were also squeezed and mixed up together for students to pick one ballot paper each and the papers were re-mixed before the next student is allowed to pick. This continued until sample size was reached. Consent form was given to the school head teachers. All pupils that participated in the balloting met the criteria for the selection which include:

i. Pupils who were willing to participate in the study and present in school.
ii. Pupils whose class falls between primary 3-6 classes
iii. Pupils currently attending the selected schools.

Exclusion Criteria

Exclusion criteria comprised of school children who do not want to participate in the study, pupils whose class falls outside primary 3-6 in selected primary schools, pupils that were not currently attending the selected schools, pupils who were absent from school during the survey.

Sample size

The Taro Yamane (1976) formula was used for the calculation of the sample size for the study.

$$\text{Sample size (n)} = \frac{N}{1+N\,(e)^2}$$

Where n = sample size
N = total population
1 = constant
E = level of precision/interval will be taken as 0.05

$$n = \frac{281}{1+ 281\,(0.05)^2} = \frac{281}{1 + 281 \text{ X } 0.0025}$$

$$= \frac{281}{1.7025} = 165$$

According to the calculation above, the sample size for this study is 165. A further calculation for attrition was done using 10% of the sample size. Thus, 10% of 165 = 16.5, therefore; (165+16.5) = 181.5 bringing the sample size to 182 by approximation. A second stage of sample size calculation involved calculating number of respondents for each school according to the number of pupils in each school proportionally.

1. N= number of pupils in Ansar-ud-deen Primary School x sample size
Total number of targeted populations

$= \frac{141}{281} \text{ x } 182 =$ 91 Respondents for Ansar-ud-deen primary school

2. N= number of pupils in Salvation Army Primary School x sample size
Total number of targeted populations

$= \frac{140}{281} \text{ x } 182 =$ 91 Respondents from Salvation Army primary school

Table 1 sample size from the two selected primary schools in Ikenne LGA

GROUP	SCHOOL	SAMPLE SIZE
Control	Ansar-ud-deen, primary school, Ilishan	91
Intervention	Salvation Army primary school, Iperu	91

Method of data collection

Data collection was done twice at set intervals for the selected primary schools consisting of control and intervention groups. The pre- and post-intervention data of the intervention group was compared to the control group data. This was to measure the difference between the dependent variable of the control group with the manipulation of independent variable of the intervention group by comparing the data of knowledge and practice in each group. Convenience sampling technique was used to select participants who were present in school while excludingpupils that were absent from school. Purposive method was used to select the classes that ranged from primary 3-6based on pupils' ability to read and respond appropriately to thestudy questionnaire. Permission for data collection was obtained from the school of nursing and the selected schools for the research. Preliminary visits were done for the purpose ofnotifying the primary schools of the selection and the research intention as well as obtain informed consent from the schools head teachers for pupils who volunteered to participate in the study. Subsequently, the control group was visited once to administer questionnaire to participants to ascertain their knowledge of prevention of dental caries and oral hygiene practices in the first week without intervention. The intervention group was also visited in the first week to administer pre-intervention questionnaire. Immediately after retrieving the questionnaire, the nursing educational intervention was conducted using demonstration method and song recitation on tooth care. The intervention group was visited at the second week after the educational intervention for the administration of post-intervention questionnaire that assessed the outcome of nursing intervention on prevention of dental caries and dental hygiene practices.

III. Data Analysis

Data collected were analyzed using statistical package for social sciences (SPSS) version 23. The study utilized descriptive statistics comprising frequency, mean, percentage and standard deviation to analyze

demographic data and to provide answers to the study questions. The hypotheses were tested using pairedt-test statistics.

IV. Results

Table 2: Demographic Statistics of the primary school pupils N = 91

	Control Group		Intervention Group			
			Pre-intervention		Post intervention	
Category	**Frequency**	**Percentage (%)**	**Frequency**	**Percentage (%)**	**Frequency**	**Percentage (%)**
AGE						
5-8yrs	13	14.3	12	13.2	12	13.2
9-12yrs	68	74.7	72	79.1	72	79.1
13-16yrs	10	11.0	7	7.7	7	7.7
Gender						
Male	49	53.8	30	33.0	30	33.0
Female	41	45.1	61	67.0	61	67.0
Type of School						
Private	91	100.0	-	-	-	-
Public			91	100.0	91	100.0
Religion						
Christianity	51	56.0	56	61.5	51	56.0
Islam	37	40.7	34	37.4	37	40.7
Others	3	3.3	1	1.1	3	3.3
Ethnicity						
Yoruba	59	65	70	76.9	70	76.9
Igbo	20	21.9	14	15.4	14	15.4
Hausa	12	13.1	7	7.7	7	7.7
Class						
Primary 3	10	11.0	27	29.6	27	29.6
Primary 4	18	19.8	13	14.3	13	14.3
Primary 5	41	45.1	35	38.5	35	38.5
Primary 6	22	24.1	16	17.6	16	17.6
Town						
Ilishan	91	100	-	-	-	-
Iperu	-	-	91	100.0	91	100.0

The study revealed that majority of the respondents (74.7%) from the control group fall between the ages of 9-12 years. In the intervention group, majority (79.1%) of the respondents also fall between the ages of 9-12 years. The study showed that about 53.8% majority of the respondents are male in the control group while in the intervention group the pre-intervention had 67.0% majority of females while the post has 54.9% as male. Furthermore, the entirerespondents in control group were from Ansar-ud-deen, Primary School Ilishan-Remo while all the respondents for intervention group were from Salvation Army primary school, Iperu Remo. Majority of the respondents both among the control group and intervention group were Christians with 56.0% and 61.5% respectively. For ethnicity, the Yoruba tribe were more both in the control and intervention group with 65% and 76.9% respectively. Majority of the respondents in both groups (45.1% and 38.5%) were in primary 5 classes. However, the study revealed that all the respondents for the control group were from Ilishan-Remo with 100% as well as 100% for intervention group from Iperu Remo

Table 3: Knowledge on Dental Care N = 91

		Control Group		Intervention Group			
				Pre-intervention		Post intervention	
Variables	**Category**	**Frequency**	**Percentage (%)**	**Frequency**	**Percentage (%)**	**Frequency**	**Percentage (%)**
Have you heard about dental care before?	Yes	45	49.5	13	14.3	91	100.0
	No	46	50.5	78	85.7	0	0
Have you experienced tooth ache before?	Yes	37	40.7	35	38.5	35	38.5
	No	54	59.3	56	61.5	56	61.5
Do you have bad mouth	Yes	59	64.8	75	82.4	2	2.2
	No	32	35.2	16	17.6	89	97.8

odor							
Do you have a bleeding gum	Yes	48	52.7	29	31.9	11	12.1
	No	43	47.3	62	68.1	80	87.9
Do you brush your teeth before going to bed at night	Yes	36	39.6	14	15.4	91	100.0
	No	55	60.4	77	84.6	-	-
Do you brush your teeth after eating sweet	Yes	35	38.5	6	6.6	91	100.0
	No	56	61.5	85	93.4	-	-
Did a nurse teach you on teeth care	Yes	51	56.0	5	5.5	91	100.0
	No	40	44.0	86	94.5	-	-

Table 3 above showed that 50.5% of the respondents in the control group have not heard about dental care, likewise those of them in the intervention group pre-intervention revealed that 85.7% of the respondent have not heard about dental care. On whether the respondents have experienced tooth ache before, 40.7% of them from the control group stated yes while, 61.5% in the intervention group said yes this reveals the past history of school children on dental care. The result further indicated that 64.8% of the respondents from the control group have mouth odor which revealed that the school children have not being practicing dental hygiene, while about 82.4% from the pre- intervention group also have mouth odor, and 97.8% does not have mouth odor after intervention which indicates that learning has taken place. Similarly, 52.7% of the respondents in control group and 31.9% among the pre-intervention group ticked bleeding gum due to poor dental hygiene or other host factors, while 87.9% from post-intervention group does not have bleeding gum. About 39.6% of the respondents from the control group indicated that they brush their mouth before going to bed while the pre-intervention group was 15.4%, this revealed that majority of the pupil's lack knowledge on dental care and 84.6% of them from the intervention group said they do not brush their mouth before going to bed at all before the intervention. Hence, we can conclude that the pre-intervention knowledge on dental care among the school children in selected primary schools in Ikenne LGA was moderate in the control group (probably because they were frequently taught dental care in the school or at home by parents) and low in the intervention group. The nursing intervention provided to the intervention group resulted to a significant increase in knowledge of dental care among selected school children.

Table 4: Knowledge on Dental Caries Prevention

		Control Group		**Intervention Group**			
				Pre-intervention		**Post intervention**	
Variables	**Category**	**Frequency**	**Percentage (%)**	**Frequency**	**Percentage (%)**	**Frequency**	**Percentage (%)**
Dental care is an adequate care for our teeth	True	44	48.4	24	26.3	91	100.0
	False	44	48.4	29	31.9	-	-
	Don't Know	3	3.3	38	41.8	-	-
Dental care can also be called teeth care	True	45	49.5	31	34.1	91	100.0
	False	34	37.4	10	11.0	-	-
	Don't Know	12	13.2	50	54.9	-	-
Poor dental care causes tooth decay	True	42	46.1	32	35.2	89	97.8
	False	32	35.2	23	25.2	2	2.2
	Don't Know	17	18.7	36	39.6	-	-
Children should brush their teeth once a day	True	49	53.8	49	53.8	16	17.6
	False	18	19.8	18	19.8	75	82.4
	Don't Know	24	26.4	24	26.4	-	-
Children should stop taking sweet or pastries	True	52	57.1	28	30.8	91	100.0
	False	34	37.4	35	38.5	-	-
	Don't Know	5	5.5	28	30.8	-	-
Teeth brushing prevents mouth odor	True	41	45.0	27	29.7	91	100.0
	False	36	39.6	27	29.7	-	-
	Don't Know	14	15.4	37	40.6	-	-

Table 4 above indicates that 48.4% of respondents from the control group and the post intervention group 100% from the intervention group responded that dental care is an adequate care for our teeth, also 49.5% from the control group and 100% from the intervention group indicated that dental care can also be called teeth care. In like manner 46.2% of the respondents from the control group and 97.8% of the respondents from the intervention group responded that poor dental care causes tooth decay after intervention. Also control group 19.8% and 82.4% (post-intervention) respectively stated that children should not brush their teeth once a day. The result similarlyshowed that 57.1% of the respondents from the control group and majority from the post intervention groups revealed that children should stop taking sweet or pastries. Hence, we can conclude that the pre-intervention prevention knowledge on dental caries among the children in selected primary schools in Ikenne LGA was moderate in the control group (probably because they were previously taught about dental care in school or by parents) but low in the intervention group. Therefore, nursing intervention provided to the intervention group resulted to a significant increase in the knowledge of prevention of dental caries among primary school children.

Table 5: Nursing Intervention Knowledge on Prevention of Dental Caries N=91

		Control Group		**Intervention Group**			
				Pre- intervention		**Post intervention**	
Variables	**Category**	**F**	**%**	**F**	**%**	**F**	**%**
Did the nurse teach you how to practice standard tooth brushing technique	Yes	39	42.9	9	9.9	89	97.8
	No	52	57.1	82	90.1	2	2.2
What angle do you place the tooth brush in the mouth	45 degree	57	62.6	4	4.4	86	94.5
	35 degree	19	20.9	57	62.6	5	5.5
	60 degree	15	16.5	19	20.9	-	-
What step should you take if you have frequent bleeding gum	Rinse Mouth	21	23.1	1	1.1	11	12.1
	Stop Bleeding	49	53.8	4	4.4	-	-
	Stop bleeding and visit doctor	21	23.1	5	5.5	80	87.9
Has a nurse informed you to prevent dental caries by washing your tooth after all dietary intake	Yes	35	38.5	3	3.3	91	100.0
	No	56	61.5	88	96.7		

Table 5 above reveals that 57.1% of the respondents responded that a nurse did not teach them how to practice standard tooth brushing technique, 90.1% of them among the pre- intervention group said no while 97.8% said yes among the post intervention. Also, majority 62.7% of the respondent from the control group picked placed tooth brush in the mouth at angle 45 degree, from the intervention (post) group, 94.5% picked placed at 45 degrees. Finally, on whether a nurse has informed you to prevent dental caries by washing your tooth after all dietary intake, about 61.5% of the respondents from the control group said no while for those in the intervention group, 94.4% from post intervention said yes. Hence, the result showed significant impact of the nursing intervention on dental caries with increased knowledge that washing the teeth after eating serves to prevent dental caries in the intervention group. This resulted to 87.9% of respondents with increased level of knowledge on measures to take to prevent dental caries.

Intervention study hypotheses

$H_0$1: There is no significant relationship between nursing intervention and prevention of dental caries among primary school children.

Table 6: Paired Samples Statistics Showing the Relationship between Nursing Intervention and Prevention of Dental Caries among Primary School Children

Paired Samples Statistics					
		Mean dental caries	N	Std. Deviation	Std. Error Mean
Pair 1	Control group	1.2351	91	0.32260	.018
	Intervention group	3.4091	91	0.75732	.022

Paired Samples t-test Intervention									
		Paired Differences					T	Df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	control group	4.52597	3.42844	.27627	3.98017	5.07177	16.382	153	.000

Result as presented in table 6 revealed that in the control group period, the mean dental score was 1.2351 ± 0.32 and the standard error margin 0.018 while in the intervention group period, the mean dental caries score stood at 3.40 ± 0.75, with error margin of .022. More so the mean for these periods stood at 4.52597 with t-value of 16.382 at p=0.000. However, this p value was < 0.05 level of significance, therefore the null hypothesis which states that there is no significant relationship between nursing intervention and prevention of dental caries among primary school children was rejected. The implication of the result is that the means for the two periods are significantly different. Hence, we can conclude that there was a significant relationship between nursing intervention and prevention of dental caries among primary school children.

$H_0$2: There is no significant relationship between pre- intervention and post intervention outcome (of nursing intervention)on preventions of dental caries among primary school children.

Table 7 Paired Samples Statistics Showing the Relationship between Nursing Intervention and Prevention of Dental Caries among Primary School Children

Paired Samples Statistics					
		Mean dental caries	N	Std. Deviation	Std. Error Mean
Pair 1	Control group	1.6400	91	.840	.068
	Pre and post intervention	4.8889	91	1.25819	.18256

Paired Samples Intervention									
		Paired Differences					T	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pre and post intervention	3.24837	2.11598	2.7107	3.58634	10.91039	122	152	.000

Table 7 indicated that in the control group period, the mean dental score was 1.6400 ± 0.840 at the standard error margin was 0.068 while in the intervention group period, the mean dental caries score stood at 4.8889 ±1.25891, the standard error margin was 18256. More so the mean for these periods stood at 3.24837 with T-value of 122 at p=0.000. However, this p value was < 0.05 level of significance, therefore the null hypothesis which states that there is no significant relationship between pre and post intervention outcome of nursing intervention on preventions of dental caries among primary school children was rejected. The implication of the result is that the means for the two periods are significantly different. Hence, we can conclude that there was a significant relationship between pre and post intervention outcome of nursing intervention on prevention of dental caries among primary school children.

V. Discussion of Findings

Knowledge about Dental Care

The result on the level of knowledge about dental care indicated that majority of the pupils from the intervention group in the pre-intervention data about 6.6% of the respondents have high level knowledge while 93.4% had low level knowledge and none moderate level knowledge. Subsequently the respondents from the control group show that 58.2% of the respondents for pre-intervention had moderate level knowledge39.6% had high level knowledge while 2.2% had low level of knowledge. This result suggests that the pupils perhaps have been taught oral care at home by their parents or caregivers. The result is consistent with that of Elfaki, Nahid and Elsheikh, (2015) who reported that reasonable number of students (37%) receive their knowledge regarding dental disease prevention and oral hygiene behaviour from their parents.Furthermore, the findings of this study corroborates the findings of Alotaibi, Jad, and Al-Sadhan., (2017) that reported overall knowledge mean score as 4.79 ± 2.09 prior to the intervention and the mean knowledge increased to 8.91 ± 1.7 after the intervention.

Knowledge of Prevention of Dental Caries

The result on the level of knowledge of majority of the students in the control group indicated that dental care is adequate care for the teeth, it was reported that the students are aware that dental care is also called teeth care which theygenerally referred to as tooth decay after the nursing educational intervention. Intervention result indicated that children should stop taking sweet or pastries for the prevention of dental caries and also ensure the brushing of teeth for the prevention of mouth odor. The result of the analysis is consistent with that of Etim & Eigbobo, (2015) that opined that good knowledge of the prevention of dental caries is

important through appropriate dental care among school age children. Intervention programmes for the promotion of dental hygiene is important by ensuring that children are healthy (El-Nasr, 2018). Additionally, Burnett, Aronson, & Asgary (2015) acknowledged that training of primary school students and teachers have proven to improve knowledge level about the prevention of dental caries including prevention of gum diseases and common teeth problems in children. Furthermore, Etim and Eigbobo, (2015) reported that intervention study between control group and intervention group yielded significant impact on the awareness level of oral hygiene among school age children through collaboration with school teachers and principals.

Knowledge of Methods of Dental Care

The result of table 4.4 indicated that one of the most effective ways of dental care includes brushing teeth and mouth regularly. The participants reported that brushing the teeth twice daily was important among the intervention group. Also 51.6% majority in the pre-interventiongroup said once daily and 4.4% in post intervention group said once daily while 80.2% majority said twice daily. The result of the analysis is in tandem with the findings of Marsh, Head, & Devine, (2015) that methods of dental care is majorly through brushing of the teeth including the number of times per day. Similarly, Anil & Anand, (2017) reported that intervention programmes for dental care should focus on strong compliance with dental care directives, reduction in the consumption of carbohydrates, sweets, fast food without adequate oral hygiene (include adequate exposure to fluoride, standard tooth brushing, copious fluid of 2-3L per day and healthy dietary intake) which are higher the risk of developing dental caries by children.

Nursing Intervention Knowledge on Prevention of Dental Caries

The result in table 4.7 indicated that nursing intervention is very important in the prevention of dental caries as nurses taught the school children how to practice standard tooth brushing. The content of the teaching includes; regular tooth brushing, visiting the doctor when there is frequent bleeding gum, and regular dental clinic visit for check-up. This resulted to 87.9% of respondents with increased level of knowledge on the measures to take to prevent dental caries.

The result corroborates the findings of Fontana and Gonzalez-Cabezas, (2016) that it is important for nurses to create therapeutic (nurse – patient) relationships with children whom they have contacts with and use such medium to orientate them on the prevention of dental caries. They also teach them the actions to be taken especially in the hospital or school environment during general assessment for health or when rendering school health services. Another study reported similar findings that nurses play essential role in providing education to clients including caregivers about modern toothpaste component, brushing technique for healthy teeth, tooth brushing and health and healthy dietary habits (Braimoh., Ogunbodede., & Adeniyi., 2014). Additionally, the frequent use of fluoride containing toothpaste is recognized as one of the most successful measures for preventing caries in the history of public health and often used as medium for community-based fluoridation programs such as drinking water and salt fluoridation (Reddy,&Singh, 2017)

VI. Limitation

While this study demonstrates the importance of addressing the problem of dental caries in school children, the strength of this study could be limited by the fact that we used a self-reported survey; therefore, the results are not validated. Like most surveys, this study is subject to both response and nonresponse bias. In terms of response bias, pupils may answer survey questions by responding how other children answered them instead of how they truly feel or experience the issue investigated. In addition, some pupils may respond to survey questions by reporting the most extreme response, especially if they experienced a positive or negative dental hygiene practice that day. Another factor that cannot be ruled out is the biases of teachers who help the pupils complete the survey.

VII. Conclusion

This study conclude that nursing intervention contributed significantly to prevention of dental caries among primary school children. Additionally, the dental hygiene of the school children improved considerably as they gainedinsight relating to dental hygiene practice which also improved their quality of life. Therefore, we can confidently say that proper dental care and preventions from dental caries is necessary for everyone. It is recommended that there should be increased awareness on tooth brushing especially for primary school children. Parents and guardians are encouraged to ensure that children have access to good tooth paste with fluoride of 1450ppm – 1500ppm content.

Declaration of Interest

The authors declare no competing interest

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