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CHILD AND MATERNAL ORAL HEALTHCARE: AN ASSESSMENT OF THE KNOWLEDGE OF NIGERIAN AND GHANAIAN NURSES

E. A. AIKINS and J. O. EIGBOBO

ABSTRACT

***Objective*: To ascertain and compare knowledge of child and maternal oral healthcare amongst a group of Nurses and Midwives in Ghana and Nigeria.**
***Design*: A cross-sectional survey.**
***Setting*: Health institutions in Cape Coast, Ghana and Port Harcourt, Nigeria.**
***Subjects*: One hundred and sixty Nurses and Midwives (80 Ghanaians and 80 Nigerians).**
***Results*: They had an age range of 21 – 65 years and a mean age of 37.8 (SD ± 9.6) years. Majority of the Nurses in both countries indicated that women should brush their teeth with a toothbrush and toothpaste (92.1%), whilst the children should use salt and cotton wool twice daily. Although more of the Ghanaian Nurses (98.8%) considered routine dental visits to be important than the Nigerian population (80%), only 3.8% of the Ghanaian Nurses against 33.8% of the Nigerians indicated there was a connection between oral disease and delivery status. Opinions differed significantly as to the reason for the first dental visit with 65.4% of the Nigerian Nurses indicating this should be when the child has toothache whereas 51.9% of Ghanaian Nurses believed it is when the first tooth erupts. However,four to six years was the common choice for when self brushing should start in both countries.**
***Conclusion*: The knowledge of this group of Nurses and Midwives on maternal and child oral healthcare was insufficient. The Ghanaian Nurses had a better knowledge of preventive dental care than their Nigerian counterparts.**

INTRODUCTION

Oral health is an important aspect of general health in children as well as women of child bearing age which impacts their quality of life as well as foetal outcomes (1,2). The incidence of early childhood caries (ECC) with sequelae of premature loss of teeth and subsequent development of malocclusion can be associated with inadequate oral hygiene (3) as well as low levels of oral health knowledge among mothers (4). ECC can be largely reduced if good oral health practices are inculcated into both mother and child. Poor maternal oral health may be associated with adverse pregnancy and infant outcomes (5). Since children and pregnant women are particularly at risk, they need to have adequate knowledge of good oral hygiene practices (1).

It has been recommended that public policies that support comprehensive dental services for vulnerable women of childbearing age should be expanded (6). Although oral health education is one of the basic roles of dental professionals, other health workers should not miss opportunities to contribute to oral health promotion (7). Professionals involved in prenatal care should discuss the importance of oral health with pregnant women and refer patients for dental treatment when necessary (8). Promoting oral health during pregnancy can improve maternal oral health, reduce the risk of early caries development in children (9) and positively influence the behaviours and attitudes of mothers and their children in relation to oral health (10).

Several studies pertaining to the knowledge, attitude and practice of oral healthcare in pregnant women and their children have been carried out in different groups of health professionals (2,11-13). Since Nurses and Midwives have direct access to women of child bearing age and may be their only means of oral health education, they can be very useful in inculcating good oral hygiene practices, thus it is imperative that they have accurate knowledge. To the best of our knowledge, there has not been any study

on the level of knowledge of child and maternal oral healthcare of this group of health professionals, thus the aim of this study were to ascertain and compare this knowledge amongst a group of Nurses and Midwives in Ghana and Nigeria.

MATERIALS AND METHODS

A cross-sectional survey was carried out involving 80 Nurses and Midwives working in various healthcare institutions in the city of Cape Coast, Southern Ghana. A parallel survey was also conducted in Port Harcourt, South – South Nigeria. All such personnel on duty on the day of data collection who agreed to participate in the study were included, whilst those who did not give their agreement were excluded.

Data were collected by way of questionnaires, which were administered to each of the participants who were encouraged to fill them independently during working hours. The questionnaires were collected same day.

These questionnaires were divided into three sections. The first section requested for demographic information, which included age, length of practice and number of women attended to weekly.

The second and third sections involved specific questions on knowledge of oral healthcare in pregnant women and children, respectively. In the second section these enquiries included opinions on tooth cleaning material in pregnant women, frequency of tooth cleaning, importance of routine dental visits in pregnancy, care of baby/children teeth, and association between mother and child oral health conditions. In the third section questions were framed to assess participants knowledge of infant/ child oral health;

(i) timing of first dental visit
(ii) choice of tooth cleaning material
(iii) commencement of tooth cleaning in an infant
(iv) tooth cleaning materials
(v) quantity of tooth paste and
(vi) age of commencement of unassisted/ unsupervised tooth cleaning

Statistical analysis: The data entry and analysis were carried out using a micro-computer and the Statistical Package for Social Sciences version 17 (SPSS Inc., Chicago, Illinois, USA). Statistical significance between frequencies were evaluated with the chi-square test and $p<0.05$ was regarded as significant.

RESULTS

The sample comprised a total of 160 Nurses (80 Ghanaians and 80 Nigerians) with an age range of 21 – 65 years and a mean age of 37.8 (SD + 9.6) years. About half of the Nurses (55.5%) had been practising for six years or less. There was a statistically significant difference ($p< 0.05$) in the numbers of women seen weekly by the Nurses in the two countries. Twenty eight (66.7%) Nigerian Nurses attended up to 200 women as compared to 62 (95.3%) Ghanaian Nurses as depicted in Table 1.

Table1
Socio-demographic characteristics of the respondents

Age	Nigeria		Ghana		Total	
	N	%	N	%	N	%
10 – 19	0	0	1	1.3	1	0.6
20 – 29	12	15.0	18	23.1	30	19.0
30 – 39	29	36.3	38	48.7	67	42.4
40 - 49	22	27.5	11	14.1	33	20.9
50 - 59	16	20.0	9	11.5	25	15.8
60 - 69	1	1.3	1	1.3	2	1.3
Total	80	100	78	100	158	100
Number of years in practice						
<1 - 6	34	47.2	46	63.9	80	55.5
7 - 12	18	25.0	15	20.8	33	22.9
13- 18	10	13.8	4	5.5	14	9.7
19 - 24	6	8.4	3	4.2	9	6.3
25 - 30	3	4.2	1	1.4	4	2.8
31 - 36	1	1.4	3	4.2	4	2.8

Total	72	100	72	100	144	100
*Number of pregnant women attended to weekly						
0 - 100	26	61.9	48	73.8	74	69.1
101 - 200	2	4.8	14	21.5	16	14.9
201 - 300	1	2.4	3	4.6	4	3.7
301- 400	3	7.1	0	0.0	3	2.8
401 - 500	1	2.4	0	0.0	1	0.9
501 - 600	1	2.4	0	0.0	1	0.9
601 - 700	0	0.0	0	0.0	0	0.0
701 - 800	2	4.8	0	0.0	2	1.9
> 800	6	14.3	0	0.0	6	5.7
Total	42	100	65	100	107	100

*Significant (P<0.05)

Knowledge of Maternal oral health: Majority of the Nurses in both countries indicated that women should brush their teeth with a toothbrush and toothpaste (92.1%) and that this should be done twice daily (98.1%). There was a significant difference between the two groups in their response to the importance of routine dental visits. Almost all the Ghanaian Nurses (98.8%) considered this to be important as against 80% of the Nigerian population. About 82% of the Nurses did not think there was any connection between oral disease and delivery status. Only 3 (3.8%) Ghanaian Nurses and 26 Nigerians (33.8%) indicated there was a connection. Table 2.

Table 2
Knowledge of Maternal Oral Health among the respondents in Nigeria and Ghana

		Nigeria n (%)	Ghana n (%)	Total n(%)
1.	How often should pregnant women clean their teeth?			
	a. once	1 (1.3)	1 (1.3)	2.(1.3)
	b. twice	78 (97.5)	79 (98.7)	157 (98.1)
	c. occasionally	1 (1.3)	0 (0)	1 (0.6)
2.	Are routine dental visits important in pregnant women?			
	a. Yes	64 (80)	79 (98.7)	143 (89.4)
	b. No	16 (20)	1 (1.3)	17(10.6)
3.	If no, when should pregnant women visit the dentist?			
a.	When there is tooth problem	17 (87.5)	1 (100)	15 (88.2)
b.	Unspecified	2 (12.5)	0 (0)	2. (11.8)
4.	Do you give advice on care of baby/ children teeth in the antenatal clinic			
	a. Yes	59 (73.7)	70 (87.5)	129 (80.6)
	b. No	21 (26.3)	10 (12.5)	31 (19.4)
5.	*Can oral (periodontal) disease in pregnant woman affect the baby at delivery			
	a. Yes	26 (33.8)	3 (3.8)	29 (18.5)
	b. No	51 (66.2)	77 (96.3)	128 (81.5)
6.	If yes, what is/or are the outcome(s)			
	1. Low birth weight (LBW)	7 (26.9)	0 (0)	7 (24.1)

2. Pre term birth (PTB)	2 (7.8)	0 (0)	2 (6.9)
3. Eruption of teeth at birth	2 (7.8)	0 (0)	2.(6.9)
4. Preeclampsia	3 (11.5)	0 (0)	3 (10.4)
5. LBW & PTB	1 (3.8)	1 (33.3)	2 (6.9)
6. PTB & Preeclampsia	1 (3.8)	0 (0)	1 (3.4)
7. LBW &Preeclampsia	1 (3.8)	0 (0)	1 (3.4)
8. PTB & eruption of teeth at birth	1 (3.8)	0 (0)	1 (3.4)
9. LBW, PTB & Preeclampsia	1 (3.8)	2 (66.7)	3 (10.4)
10. Don't Know	7 (26.9)	0 (0)	7 (24.1)

*Significant p (<0.05)

Knowledge of Child oral health: Overall about half of the respondents (52.9%) and almost two- thirds of the Nigerian Nurses (65.4%) indicated that the first dental visit should be when the child has toothache. Over fifty percent (51.9%) of Ghanaian Nurses believed that the first visit should be when the first tooth erupts. These findings were statistically significant (p<0.05). Majority of the Nurses in both countries indicated that the children should see a dentist twice a year, tooth cleaning should start as soon as the first milk tooth erupts and cotton wool and salt should be used to clean the teeth, whilst four to six years was the common choice for when self brushing should start. Table 3.

Table 3
Knowledge of child oral healthcare among the respondents in Nigeria and Ghana

	Nigeria		Ghana		Total	
	N	%	N	%	N	%
*First dental visit of a child						
Toothache	51	65.4	32	40.5	83	52.9
Tooth decay	3	3.8	6	7.6	9	5.7
First tooth erupts	24	30.8	41	51.9	65	41.4
Total	78	100	79	100	157	100
How often should a child visit the dentist						
Once a year	14	17.5	15	18.8	29	18.1
Twice a year	50	62.5	58	72.5	108	67.5
When there is a problem	16	20.0	7	8.8	23	14.4
Total	80	100	80	100	160	100
When to start cleaning a child's teeth						
First milk tooth erupts	65	81.2	73	91.2	138	86.2
All milk teeth erupt	11	13.8	2	2.5	13	8.1
First permanent tooth erupts	3	3.8	3	3.8	6	3.8
All permanent teeth erupt	1	1.2	2	2.5	3	1.9
Total	80	100	80	100	160	100
What to use in cleaning child's teeth						
Cotton wool and salt	38	48.1	35	43.7	73	45.9
Cotton wool and toothpaste	10	12.6	10	12.5	20	12.6
Face towel and water	18	22.8	16	20.0	34	21.4
Soft toothbrush and toothpaste	13	16.5	19	23.8	32	20.1
Total	79	100	80	100	159	100

Size of toothpaste on child's toothbrush (<6 years)						
Pea size	37	46.2	53	66.2	90	56.3
Bean size	25	31.2	17	21.2	42	26.3
Half the toothbrush	13	16.3	7	8.8	20	12.5
Entire toothbrush	3	3.8	2	2.5	5	3.1
Do not know	2	2.5	1	1.3	3	1.8
Total	80	100	80	100	160	100
What age should a child start self brushing (yrs)						
1-3	19	23.7	10	12.5	29	18.1
4-6	53	66.2	62	77.5	115	71.9
7-9	7	8.8	8	10.0	15	9.4
>15	1	1.3	0	0	1	0.6
Total	80	100	80	100	160	100

Forty five percent of the Nigerian Nurses and 58.8% of Ghanaian Nurses conduct oral examination of the pregnant women during antenatal clinics.

DISCUSSION

Oral health cannot be divorced from general health because many oral conditions are intimately related to systemic diseases (14) and total healthcare requires the combined efforts of both the medical and the dental professions. The practice of modern medicine has become a joint effort of many groups of health workers which also includes paramedical personnel (14). Since mothers are undoubtedly the primary source of early education in children with regards to good oral health practices (15), it is essential that Nurses and Midwives play a significant role in their perinatal care. This role can be efficiently carried out if they acquire an accurate knowledge of maternal and child oral health (13).

The results obtained from this study suggest that Nurses and Midwives in Ghana and Nigeria have some knowledge of maternal oral healthcare. Majority of the Nurses in both countries indicated that the mothers should brush their teeth with a toothbrush and toothpaste (92.1%) twice daily (98.1%). These findings may be attributed to the great emphasis given to oral health marketing by local toothpaste manufacturers who use the mass media to advertise and encourage the usage of toothpaste twice daily to brush. It is of interest that majority of the Nurses in both countries indicated that it is important for the mothers to have routine dental checkups. However, there was a significant difference in the knowledge of this fact with 20% of the Nigerian Nurses and only 1.3% of the Ghanaian Nurses indicating that routine dental checkups for the mothers are unimportant ($p<0.05$). This may be adduced to the fact that in Ghana many of the aforementioned advertisements also include and stress the fact that biannual dental checkups are vital to good oral hygiene.

Also, it has been noted in other Nigerian studies, that it is generally believed that the main reason for dental visits is pain and not for a check up (16-18). In the present study, out of those that did not deem routine dental visits important, majority of the Nigerian Nurses stated that the reason for the dental visit of a mother should be when she has a tooth problem. This shows that they are unaware of the importance of dental checkups to prevent onset of oral diseases and control their progressions by early interventions.

Interestingly, there was a paucity of knowledge among the Nurses in both countries as to the effect of oral (periodontal) disease of the mother on her unborn child, with only about 18% stating there was a connection. This is far less than the 87% reported by Wooten *et al* (13) on American certified nurse midwives and nurse practitioners. This may be because they had more exposure to oral health education than the African Nurses studied. This difference may be due to the fact that education of the Nurses and Midwives in oral healthcare in pregnancy is deficient, thus they are probably not aware of the association between periodontal disease and adverse outcomes such as low birth weight, premature birth, and precclampsia (6).However the inadequate knowledge in oral-systemic link may be similar to that reported on Australian (2) and Iranian (12) midwives.

However, the Nigerian Nurses demonstrated almost ten times as much knowledge of this fact (33.8%) than the Ghanaian Nurses (3.8%) which was highly significant. The Nigerian Nurses may have

been much more aware of this than their Ghanaian counterparts due to the fact that presently there are more dental specialists in Nigeria than Ghana which gives them more access to knowledge of current concepts in dentistry. This finding underscores the need for Nurses and Midwives who are actively involved in antenatal care to have adequate training in oral health. This is to enable them discuss the importance of good oral hygiene practices with pregnant women, encourage routine dental checkups (10) and refer patients for dental treatment when necessary.

Knowledge of child oral healthcare: The American Academy of Pediatric Dentistry (AAPD) recommends that dental visits should begin with the appearance of a child's first tooth, typically around six months but no later than one year (19). In our study, about half (51.9%) of the Ghanaian Nurses knew this, thus demonstrating better knowledge than their Nigerian counterparts. Majority of the Nigerian Nurses (65.4%) thought that the first visit of a child to the dentist should be when the child is in pain. This has been seen in other Nigerian studies where very few children have been found to attend the dental clinic for routine checks (17,18). The number of respondents in agreement with AAPD recommendation shows that further enlightenment of Nurses is needed if they are expected to advise parents accordingly. It has been reported that early first dental visits have a significant positive effect on dentally related expenditure, with the average dentally related costs being lower for children who received earlier preventive care. Also, children that had a preventive dental visit by age one were likely to have subsequent preventive visits rather than subsequent restorative or emergency visits compared to those who did not (20).

Majority of the Nurses in both countries believed correctly that the child should be taken to the dentist twice a year (62.5% Nigeria, 72.5% Ghana) start cleaning the teeth as soon as the first milk tooth erupts (81.2% Nigeria, 91.2% Ghana), however, cotton wool and salt (48.1% Nigeria, 43.7% Ghana) was the preferred cleaning medium in both countries as opposed to a soft toothbrush and toothpaste which is what is recommended. Children develop good dexterity and are able to brush by themselves between the ages of seven to eight years, but majority of the Nurses indicated that the child should start self brushing at four to six years.

Although about half of the Nurses (51.9%) acknowledged that they carried out oral examinations during antenatal clinics and gave advice on the care of children's teeth, their knowledge of child oral healthcare was insufficient. Since midwives / Nurses are more likely to attend to expectant and new mothers compared to dental professionals, it is important they have accurate oral health information on oral diseases especially early childhood caries. They are in a position to identify some of these conditions and refer to a dentist provided they are armed with appropriate oral health information themselves. This underscores the need for oral health education to be an integral part of the nursing curriculum as suggested by other researchers (2,16,20).

In conclusion, the knowledge of this group of Nurses and Midwives on maternal and child oral healthcare was insufficient. The Ghanaian Nurses however had a better knowledge of preventive care than their Nigerian counterparts.
Midwives and Nurses in our environment may well be the only source of information for expectant mothers, new mothers and children in the first three years of life and so it is important they educate parents accurately. We therefore recommend that oral health education be an integral part of the nursing curriculum.

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