

## ORIGINAL ARTICLE

# Oral health practices among pregnant women in North Eastern Nigeria

M Bukar, BM Audu, OA Adesina<sup>1</sup>, JY Marupa<sup>2</sup>

Department of Obstetrics and Gynaecology, University of Maiduguri Teaching Hospital Borno State, <sup>1</sup>Department of Oral/Maxillofacial Surgery University of Maiduguri Teaching Hospital, <sup>2</sup>Department of Obstetrics and Gynaecology Federal Medical Centre Yola, Nigeria

## Abstract

**Objective:** The objective of this study was to document oral health practices of pregnant women in two tertiary institutions in North-eastern Nigeria.

**Materials and Methods:** This was a cross-sectional study of pregnant women seen at the antenatal clinics of the University of Maiduguri Teaching Hospital and Federal Medical Centre Yola from May 1, 2009 to July 1, 2009.

**Results:** A total of 294 women were interviewed. They were aged 15-46 with a mean of  $27.42 \pm 5.97$  years. The parity ranged from 1 to 9 with a mean of  $2.23 \pm 1.65$ . Twelve (4.1%) women gave a history of symptomatic oral lesion in index pregnancy. Forty-four (15%) had had previous encounter with a dentist, while the highest frequency of oral care was twice a day in 164 (55.8%) of respondents. The majority, 264 (89.9%), used toothbrush/toothpaste as a form of oral care while 2 (0.7%) used charcoal. Women of low parity tended to have better oral care than those of high parity ( $P = 0.002$ ). Women who are employed had better oral care than housewives ( $\chi^2 = 27.749$ ,  $P = 0.001$ ). There was no significant relationship between oral complaints and trimester of pregnancy ( $\chi^2 = 4.271$ ,  $P = 0.118$ ).

**Conclusion:** Oral healthcare among the respondents was encouraging but involvement of the dental surgeon in preventive oral care in pregnancy is rather dismal.

**Key words:** North-eastern Nigeria, oral health practice, pregnancy

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## Introduction

Several changes occur in the oral cavity during pregnancy with the greatest being in the gingiva.<sup>[1]</sup> Pregnancy, however, does not seem to predispose to tooth decay.<sup>[2]</sup> Bleeding gingiva is not uncommon in pregnancy as a result of increase systemic estrogen. These changes should return to normal after pregnancy or withdrawal of oral contraceptive pills. Bleeding and tenderness of the gingiva could also result from deficiency of vitamin C.<sup>[2]</sup> Periodontal disease is one of the most common infectious disorders in humans.<sup>[3]</sup> Previous studies have suggested a relationship between periodontal disease and adverse pregnancy outcomes like preterm birth, preeclampsia, and fetal growth restriction,<sup>[4,5]</sup> but the

recent large prospective study has failed to demonstrate an association between periodontal disease and adverse pregnancy outcome.<sup>[6]</sup>

The oral health needs of pregnant women in Northeastern Nigeria has not received the desired attention to the extent that even obstetricians hardly refer pregnant women to the dentist except if a complaint exist. This may be because there is poor appreciation of oral health needs of pregnancy. This review is an attempt to determine the oral health practices of pregnant women in northeastern Nigeria.

### Address for correspondence:

Dr. Mohammed Bukar,  
Department of Obstetrics and Gynaecology, University of Maiduguri Teaching Hospital, PMB, 1414, Maiduguri, Borno State, Nigeria.  
E-mail: mbbukar07@yahoo.com

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## Materials and Methods

This was a cross-sectional, questionnaire-based study of 294 women, aged 15-46 years seen at the antenatal clinic of two tertiary health institutions in Northeastern Nigeria (Federal Medical centre Yola and University of Maiduguri teaching hospital) from May 1, 2009 to July 1, 2009. Respondents were interviewed after verbal consent was obtained. No participant declined participation in the study. They were asked about their demographic characteristics, duration of pregnancy, previous contraceptive use, previous oral lesion and lesion in index pregnancy, previous visit to dentist, type of oral care, frequency of care, and material used for oral care among others. The research and ethical committee of the hospitals approved the study. The information obtained was analyzed using SPSS version 16 (SPSS, Inc, Chicago, IL, USA). The chi-square test was used to determine significance and a *P*-value <0.05 was considered significant.

## Results

Two hundred and ninety four respondents were interviewed during the period of study. The sociodemographic characteristics are shown in Table 1. They were aged 15-46 with a mean of  $27.42 \pm 5.97$  years. The majority, 286 (97.3%), were married. The parity ranged from 1 to 9 with a mean of  $2.23 \pm 1.65$ . Most, 226 (76.9%), had at least secondary education with 50 (17.0%) being nonliterate. Housewives constituted the majority of the respondents, 142 (48.3%). Only 18 (6.1%) registered for antenatal care in the first trimester. Muslims made up 176 (59.9%) of those interviewed. Only 38 (12.9%) gave a history of previous contraceptive use.

Table 2 reveals the oral health practices among the studied population. The majority, 264 (89.9%), used toothbrush/paste as a form of oral care while 2 (0.7%) used charcoal. Most women, 164 (55.8%), brush their teeth twice a day. Only 44 (15.0%) had visited the dentist in and out of pregnancy and only a few, 12 (4.1%), had symptomatic oral lesion in the index pregnancy, with excessive salivation been the most common.

The relationship of variables of interest with oral care is depicted in Table 3. Women of low parity tended to have better oral care than those of high parity ( $\chi^2 = 20.281$ ,  $P = 0.002$ ). Education had a positive influence on oral care ( $\chi^2 = 45.940$ ,  $P = 0.000$ ). Employed women had better oral care than housewives ( $\chi^2 = 27.749$ ,  $P = 0.001$ ). Those of Muslim faith had better oral care than their Christian counterparts ( $\chi^2 = 15.662$ ,  $P = 0.001$ ). There was no significant relationship between oral complaints and the trimester of pregnancy ( $\chi^2 = 4.271$ ,  $P = 0.118$ ) but a significant association was found between the frequency of oral care and trimester of pregnancy ( $\chi^2 = 18.809$ ,  $P = 0.016$ ).

## Discussion

The preponderance of women with some formal education 214 (82.9%), with 196 (76.9%) having had at least secondary education, compares favorably with a previous study on perception of oral health in South western Nigeria.<sup>[7]</sup> The high number of housewives, 48.3% in our study, is in sharp contrast to 44% professionals and civil servants found in Ibadan.<sup>[7]</sup> This difference in social class may affect oral health practice and health seeking behavior generally.

Most of the women studied used toothbrush and paste as a form of oral care. This is similar to an earlier study.<sup>[8]</sup> The urban abode of the respondents might explain the high rate of use of toothbrush although some used a combination of toothbrush and chewing stick and a few used charcoals. The explanation given by Bassey *et al.*,<sup>[8]</sup> that the high use

**Table 1: Sociodemographic characteristics of respondents (n = 294)**

Characteristic	Number	Percentage
Age (years)		
15-19	18	6.1
20-24	84	28.6
25-29	90	30.6
30-34	62	21.1
≥35	40	13.6
Marital status		
Single	4	1.4
Married	286	97.3
Separated	2	0.7
Divorced	2	0.7
Parity		
1	138	46.9
2-4	120	40.8
>5	36	12.2
Educational status		
Non literate	50	17.1
Primary	18	6.1
Secondary	76	25.9
Tertiary	150	51.0
Occupation		
Housewife	142	48.3
Business	30	10.2
Civil servant	88	29.9
Student	34	11.6
Religion		
Christian	118	40.1
Muslim	176	59.9
Gestational age at booking		
First trimester	18	6.1
Second trimester	230	78.2
Third trimester	46	15.6
Previous contraceptive use		
No	256	87.1
Yes	38	12.9

**Table 2: Oral health practices among the study group (n = 294)**

Variable	Number	Percentage
Nature of oral care		
Toothbrush/paste	264	89.8
Chewing stick	26	8.8
Charcoal	2	0.7
Toothbrush + chewing stick	2	0.7
Frequency of daily oral care		
1	106	36.1
2	164	55.8
3	22	7.5
5	2	0.7
Previous visit to the dentist		
No	250	85.0
Yes	44	15.0
Presence of oral complaint in index pregnancy		
No	282	95.9
Yes	12	4.1
Nature of oral complaint		
Excessive salivation	8	67
Bleeding gingiva	3	25
Toothache	1	8

of toothbrush is a result of availability and cheapness and that no high level skill is required is not entirely satisfactory in that chewing stick is cheaper and at times free as people break branches of trees to make local chewing stick and their use requires no skill at all unlike use of toothbrush. Acceptance of modernity and attainment of western education might be contributing factors to high rate of use of toothbrush/paste. It would be interesting to look at oral health practice in rural areas where the sociodemographic characteristics are at variance with what obtains in urban cities. Contrary to a previous study<sup>[7]</sup> educational status had a positive influence on oral care in our study ( $\chi^2 = 45.940$ ,  $P = 0.000$ ). Most respondents brush their teeth twice a day with 0.7% doing so five times a day due to distaste of the pregnancy. The increase in number of tooth brushing in pregnancy in this study is not because of awareness of oral healthcare but because of distaste associated with the pregnancy state.

Most obstetricians in Nigeria hardly refer pregnant women for dental treatment due to lack of dental complaints by the women, but this could also be due to lack of awareness by doctors on the need for dental care during pregnancy. Similar observation has been made earlier.<sup>[7]</sup> The most common oral condition found in this study was excessive salivation, followed by bleeding gingiva. This is in consonance with a study by Koos and Moore<sup>[2]</sup> but in contrast with that of Basse et al.<sup>[8]</sup> who found bleeding gingivas as the most common complaint. In contrast to previous studies,<sup>[9,10]</sup> oral complaints were not related to trimester of pregnancy in our study ( $\chi^2 = 4.271$ ,  $P = 0.118$ ). This is because only a

**Table 3: Relationship between variables of interest and oral care**

Variable	Nature of oral care				Total
	T	C	CH	TC	
Parity					
1	132	4	0	2	138
2-4	104	14	2	0	120
>5	28	8	0	0	36
Total	264	26	2	2	294
$\chi^2 = 20.281$ , $P = 0.002$					
Education					
None	34	14	2	0	50
Primary	16	2	0	0	18
Secondary	68	8	0	0	76
Tertiary	146	2	0	2	150
Total	264	26	2	2	294
$\chi^2 = 45.940$ , $P = 0.000$					
Occupation					
Housewife	120	20	2	0	142
Business	28	2	0	0	30
Civil servant	86	2	0	0	88
Student	30	2	0	2	34
Total	264	26	2	2	294
$\chi^2 = 27.749$ , $P = 0.001$					
Religion					
Christian	116	2	0	0	118
Muslim	148	24	2	2	176
Total	264	26	2	2	294
$\chi^2 = 15.662$ , $P = 0.001$					
Oral complaint GA at booking					
No	16	220	46		282
Yes	2	10	0		12
Total	18	230	46		294
$\chi^2 = 4.271$ , $P = 0.118$					
Frequency of Daily care GA at booking					
1	4	86	16		106
2	10	130	24		164
3	4	14	4		22
5	0	0	2		2
Total	18	230	46		294
$\chi^2 = 18.808$ , $P = 0.016$					

T = Toothbrush/paste; C = Chewing stick; CH = Charcoal; TC = Combination of toothbrush with chewing stick; GA = Gestational age.

few of the women presented in the first trimester when the incidence of excessive salivation is likely to be higher. At the time most of the women presented in the second and third trimesters of pregnancy, some would have forgotten such complaints and others would consider excessive salivation as normal.

The high estrogen and progesterone levels during pregnancy induce hyperemia, edema, and bleeding of periodontal tissues making pregnant women susceptible to periodontal disease.<sup>[10,11]</sup> Previous studies have suggested a relationship between periodontal disease and adverse pregnancy

outcomes like preterm birth, preeclampsia, and fetal growth restriction,<sup>[4,5]</sup> but the recent large prospective study has failed to demonstrate such an association.<sup>[6]</sup>

For optimal oral health, dental professionals' recommend preventive dental visits.<sup>[12]</sup> The most common measure of utilization of dental services is the number of visits to the dentist per person per year.<sup>[13]</sup> In our study only 15% visited the dentist in and out of pregnancy and all were for therapeutic purposes. The poor oral health seeking behavior of Nigerian pregnant women has been reported earlier by Arowojolu *et al.*<sup>[7]</sup> and Bassey *et al.*<sup>[8]</sup>

In conclusion, oral healthcare among the respondents was encouraging but involvement of the dental surgeon in preventive oral care in pregnancy is rather dismal. However, the visit of pregnant women to the dentist during pregnancy could improve oral healthcare.

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