

# Oral Health Knowledge and Practices among Pregnant Women in a Teaching Hospital in North-West, Nigeria

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## ABSTRACT

**Objective:** Oral health is an important component of general health and should be maintained during pregnancy and through a woman's lifespan. Pregnancy is a special state which results in physiological changes which also manifest in the woman's oral health. Preventive dental care at the primary level will broaden the scope of pre-natal care. The objective of the study was to assess the level of knowledge, attitude and practices of oral health among pregnant women attending antenatal clinic at Barau Dikko Teaching Hospital, Kaduna.

**Methods:** The study was carried out at Barau Dikko Teaching Hospital, Kaduna from January to June 2018. Questionnaires were administered to 320 pregnant women who consented, to get information on demographic and reproductive characteristics, oral health knowledge and practices. Intraoral examinations were also performed.

**Results:** The results showed that the majority of the respondents were within 26-33 years of age (45.3%), had secondary school education (45.95%), Hausa (57.09%) by tribe, were into various business women (48.6%). However, a very high number had never visited the dentist (n=134, 45.3%) and this was affected by parity.

**Conclusion:** More pregnant women need to be educated on proper oral health care, to improve pregnancy outcome.

**Key words:** Pregnant women, oral health, knowledge, attitude, practices

## INTRODUCTION

Pregnancy is a special state for a woman which is associated with a myriad of physiological and emotional changes (Bashorun & Anthony, 2014). In the oral cavity, various pathologies have been reported among pregnant women (Ressler-Maclendes et al., 2005).

During pregnancy there is increased secretion of gestational hormones (especially estrogen and progesterone), this results in the exaggerated

inflammatory response of the gum to bacteria plaque resulting in pregnancy gingivitis which is common in pregnant women (Ressler-Maclendes et al., 2005).

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A bacterial plaque is a tenaciously adherent complex of bacteria, food debris, desquamated epithelium which is firmly attached to the teeth. They are formed about an hour after tooth-brushing and are responsible for the two commonest oral diseases: dental caries and periodontal diseases. Its accumulation can be prevented by regular tooth brushing, use of dentifrices, flossing and professional prophylaxis, anti-plaque agents, dental hygiene and education (Mills & Moses, 2002; Orenuga & Sofola, 2005; Obinna et al., 2012). Scaling and polishing, root planning and deep curettage all help to achieve good oral health in pregnancy (Bukar et al., 2012).

Good nutrition and healthy lifestyles play an important role in the general wellbeing of the pregnant woman. The need to eat a balanced diet with a lot of fruits cannot be overemphasized (Bukar et al., 2012). Pregnancy state often predisposes to unhealthy eating habits such as eating of snacks and refined carbohydrates which provide the growth medium for cariogenic bacteria that leads to the formation of cavities on the teeth (Obinna et al., 2012).

The frequent vomiting during pregnancy by many women also causes dental erosion which results in dentinal sensitivity (Bukar et al., 2012; Obinna et al., 2012). There are some cultural views that restrict the diet of some women to the detriment of oral health such as forbidding the eating of fruits during pregnancy (Basse et al., 2010). This adversely affects the gingival resistance to irritants.

A large proportion of pregnant women report oral health problems involving hard and soft tissues during pregnancy (Basse et al., 2010). A majority believed that such problems are normal to occur in pregnancy and would disappear after birth (Basse et al., 2010). A lot of pregnant women do not seek dental care during pregnancy.<sup>7</sup> Most times, pregnant women are referred to the dentist by obstetricians only when they have oral complaints.

Oral health should be an integral component of general health as done in developed countries, but in Nigeria, this has been neglected significantly and has resulted in many pregnant women coming down with periodontal diseases, dental caries and dentinal sensitivity (Adesina et al., 2018).

The objective of this study was to assess the knowledge, attitude and practices of oral health among pregnant women receiving antenatal care at Barau Dikko Teaching Hospital Kaduna (BDTH). The

results obtained would serve as baseline information for planning oral health education program aimed at improving the oral health in pregnant women receiving antenatal care in the hospital.

## MATERIAL AND METHODS

The study was carried out at the antenatal clinic of Barau Dikko Teaching Hospital, from January to June 2018. The hospital is a tertiary center in North-West Nigeria. All pregnant women attending the antenatal clinic for the first time in the hospital and consented to participate in the study were included. Pretested, structured and interviewer-administered questionnaires allowing open and closed responses were used for data collection. Information collected includes information on demographics, reproductive characteristics, and information relating to oral health. Intra-oral examinations were also performed by the dental surgeon and trained dental nurses to check for oral health status and oral diseases.

Yaro yanmane (1967) formula was used to calculate the sample size.

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

Where:

n= Sample size (unknown)

N= Population = 1,600

l= Constant

e=Margin of error = 5%=0.05

$$n = \frac{1600}{1 + 160(0.05)^2}$$

$$n = \frac{1600}{1 + 160(0.0025)}$$

$$n = \frac{1600}{1 + 4} = \frac{1600}{5}$$

= 320.

The data was analysed using the SPSS for window's (version 11.0; SPSS Inc Chicago)

Chi-squared tests of association and ANOVA test were utilized where appropriate and associations and differences were considered significant where the p values were less than 0.05.

### Scores for Knowledge and Attitude of Oral Health of Respondents

The knowledge was based on a score of 0 to 4. Good knowledge of causes of dental caries and gum diseases scores 3-4 and poor knowledge scores 0-1, score 2 was for average knowledge. The attitude was scored based on materials used for teeth brushing, the number of times the respondents clean the teeth and visit the Dentist. A score of 3-4 indicates an overall positive attitude, score 2 was for average, and a score of 0-1 means a negative attitude (Table III). Logistic regression analysis was done to identify

possible actors influencing oral health knowledge and attitude.

Ethical approval was obtained from the ethical committee of Barau Dikko Teaching Hospital, Kaduna.

## RESULTS

A total of 320 questionnaires were administered, where 296 representing 92.5% were validly filled and returned by the respondents, and 24 which represent 7.5% were not utilized in this study. Out of this 24, about 16 were held back by the respondents, while 7 copies were returned blank, and 1 was wrong filled by the respondent.

### Socio-demographic features of study participants

The analysis of the table 1 shows that 112(37.8%) of the respondents fall between 18-25 years, 134(45.3%) are within 26-33 years and were more significant  $p < 0.00$  age range, 43(14.5%) fall between 34-41 years, while the remaining 7(2.36%) are within 42-49. On the educational level of the respondents (Table 1), Only 16(5.41%) had Qur'anic education, 19(6.42%) had primary school education, 136(45.95%) secondary school education, 117(39.53) attained tertiary education while 8(2.70%) had none or less  $p < 0.01$ . It also revealed that 169(57.09%) of

the respondents are Hausa, 16(5.41%) are Igbo, 26(9.46%) are Yoruba, while the remaining 28.04% are other tribes. Occupation showed that the majority were into various businesses ( $n=144$ , 48.6%) and few were applicants ( $n=12$ , 4.1%) (Table 1).

### Oral Hygiene practices the study of population

Oral hygiene practices of the women (Table II) showed that majority of the women clean their teeth with toothbrush and paste ( $n=286$ , 96.6%), few used chewing stick only ( $n=3$ , 1.0%) and others combined the two ( $n=7$ , 2.4%), also majority ( $n=196$ , 66.2%) cleans twice a day, and 92(31.1%) clean only once a day, 6(2.0%) clean more than twice. A very high number have never visited the dentist ( $n=134$ , 45.3%), most of which were those with three children  $p < 0.01$ . The commonest oral diseases identified were: gingivitis, dentinal sensitivity, halitosis, epulis and dental caries.

### Pregnancy and Reproductive History

Women who had not gotten a live baby constituted the highest ( $n=104$ , 35.1%), those that had one or two accounted for ( $n=98$ , 31.1%), while those that had three children and above constituted ( $n=94$ , 31.8%) of the study population.

Table 1: Socio-Demographic Characteristics of Study Population

Socio-Demographic Characteristics	Frequency (n)	Percent (%)
<b>Age (years)</b>		
18-25	112	37.8
26-33	134	45.3
34-41	43	14.5
42-49	7	2.4
<b>Level of Education</b>		
None	8	2.7
Quaranic	16	5.4
Primary	19	6.4
Secondary	136	46.0
Tertiary	117	39.5
<b>Occupation</b>		
House wife	76	25.7
Business	144	48.6
Civil servant	64	21.6
Student	12	4.1
<b>Ethnicity</b>		
Hausa	169	27.7
Igbo	16	5.4
Yoruba	28	9.5
Others	83	28.0
Total	296	100.0

Table 2: Oral hygiene practices in study population

Oral Hygiene Practices	Frequency (n)	Percent (%)
<b>Materials used for teeth cleaning</b>		
Toothbrush and paste only	286	96.6
chewing stick only	3	1.0
Both above	7	2.4
<b>Time of teeth cleaning</b>		
Once daily	92	31.1
Twice daily	198	66.9
>twice daily	6	2.0
<b>Visit to dentist</b>		
Never	134	45.3
Once	96	32.4
Twice	56	18.9
>Twice	10	3.4
Total	296	100.0

### Oral Health Knowledge and Attitudes

A total of (n= 202, 68.2%) reported having never heard the term dental caries while (n=94, 31.8%) of the respondents understood the term tooth decay. A smaller proportion of respondents (n=28, 9.5%) understood the term periodontal disease, but (n=76, 25.7%) of the women knew the term gum diseases, while a large number (n=192, 64.8%) did not understand both terms. A large proportion of the respondents (n= 146, 49.3%), consider sugar to be the cause of both tooth decay and gum disease, while (n=150, 50.7%) did not know what caused both diseases.

### Knowledge and practices of Oral Health

table iii displays the relationship between the respondents' oral health knowledge and their socio-demographic characteristics. the relationship between the level of oral health knowledge and ethnicity (p=0.079), level of education (p=0.651), age category (p= 0.411), and parity (p=0.143) using a proportional test (chi-square) were not statistically significant. however, when comparing the mean knowledge scores using ANOVA, the respondent's level of education (p=0.000) was significantly related to the respondent's oral health knowledge. the more educated women appeared to have better knowledge than the less educated women. the relationship between the oral health attitude levels and level of education (p = 0.001), ethnicity (p=0.000) was also observed to be statistically significant using the chi-square test. the more educated women displayed more positive

attitudes than less educated women. women from the hausa ethnic group also appeared to have more negative attitudes than the other tribes. the relationship between mean attitudinal scores and ethnicity (p = 0.000) age category (p = 0.301), parity (p = 0.421) was not statistically significant using ANOVA. following logistic regression analysis, the educational of the respondent was observed to be the most important predictor of oral health attitude ( $\beta=0.174$  p=0.001). thus, for every unit increase in educational status the odds for having poor oral health knowledge. none of the socio-demographic variables were significantly related to oral health knowledge

### DISCUSSION

There is no controversy on the fact that good oral health during pregnancy is important in view of the recent suggestions that poor oral health may result in unfavourable pregnant outcomes (Basse et al., 2010). The commonest oral disease during pregnancy is a periodontal disease which can be prevented if simple methods such as regular teeth brushing and flossing are employed (Adesina et al., 2018). The commonest oral disease identified in this study was gingivitis. Pregnancy is a teachable moment when women are motivated to adopt healthy behaviour, most especially for women of lower socio- economic status; pregnancy provides a unique opportunity to obtain dental care. Prenatal counselling about oral health care has been shown to be highly correlated with teeth cleaning during pregnancy (Offenbacher et al., 1998).

Table 3: Knowledge and practices of oral health among pregnant women

Characteristics	Knowledge				Mean knowledge scores	Attitude				Mean attitude scores
	Good		Poor			Positive		Negative		
	No	%	No	%		No	%	No	%	
<b>Age</b>										
18 – 25	96	39.8	16	29.1	2.80	89	42.7	23	26.1	7.18
26 – 33	111	46.1	23	41.8	3.15	92	44.2	42	47.7	5.61
34 – 41	32	13.3	11	20.0	3.00	25	25	18	20.45	6.47
42 – 49	2	0.8	5	9.1	3.04	2	1.1	5	5.7	7.61
<b>Total</b>	241	100.0	55	100.0	3.11	208	100.0	80	100.0	8.11
	$\chi^2 = 3.11$ $p = 0.411$				$F=2.124$ $p=0.412$	$\chi^2 = 0.24$ $p = 0.523$				$F=2.347$ $p=0.301$
<b>Level of Education</b>										
None	0	0.0	8	7.1	2.83	2	0.8	6	10.7	6.18
Quranic	0	0.0	16	14.3	2.79	9	3.7	7	12.5	7.63
Primary	0	0.0	19	17.0	2.57	11	4.3	8	14.3	8.41
Secondary	86	46.7	50	44.6	3.14	111	46.2	25	44.6	7.64
Tertiary	98	53.3	19	17.0	3.01	107	45.5	10	17.9	6.44
<b>Total</b>	184	100.0	112	100.0	3.12	240	100.0	56	100.0	7.61
	$\chi^2 = 1.23$ $p = 0.651$				$F=1.117$ $p=0.411$	$\chi^2 = 13.10$ $p = 0.003^{**}$				$F= 7.817$ $p=0.001^{**}$
<b>Ethnicity</b>										
Hausa	52	47.3	117	62.9	2.83	96	53.0	73	63.5	7.82
Igbo	7	6.4	9	4.8	2.79	10	5.5	6	5.2	5.69
Yoruba	16	14.5	12	6.5	2.57	19	10.5	9	7.8	7.42
Others	35	31.8	48	25.8	3.14	56	30.9	27	23.5	7.17
<b>Total</b>	110	100.0	186	100.0	3.01	181	100.0	115	100.0	7.41
	$\chi^2 = 8.36$ $p = 0.079$				$F=6.789$ $p=0.00^{**}$	$\chi^2 = 31.29$ $p = 0.000^{**}$				$F=14.30$ $p=0.000^{**}$
<b>Parity</b>										
0 – 4	102	82.9	142	82.6	2.79	152	81.3	12	41.4	8.63
5 – 10	21	17.1	29	16.9	2.57	34	18.2	16	55.2	7.42
>10	0	0.0	2	1	3.14	1	1	1	3.4	8.61
<b>Total</b>	123	100.0	172	100.0	3.01	187	100.0	29	100.0	7.41
	$\chi^2 = 3.51$ $p = 0.142$				$F=1.471$ $p=0.143$	$\chi^2 = 0.57$ $p = 0.751$				$F=0.485$ $p=0.421$

This study was designed to assess the general knowledge and practices of pregnant women in parts of northern Nigeria. The results showed overall respondents in the present survey displayed average oral health knowledge and positive attitudes to oral health care as observed in similar studies (Bassey et al., 2010; Bukar et al., 2012; Adesina et al., 2018), but under-utilization of available dental services was evident. This is due to the fact that the study was conducted in a health facility located at the nerve centre of Northern Nigeria. Many of the participants were averagely educated. The occurrence of

pregnancy epulis in conjunction with severe gingivitis in eight respondents generated fear and apprehension of a possible gum cancer which prompted a visit to the specialist.

It was observed that excessive salivation was the commonest complaints of the women studied. This was in agreement with the previous studies (Abiola et al., 2011; Adesina et al., 2018). Periodontal disease was the second common disease diagnosed in our study, this supported previous studies (Offenbacher et al., 1998; Lopez et al., 2002) among women during pregnancy. Pregnancy gingivitis is an increased

inflammatory response to dental plaque during pregnancy causing the gingivae to swell and bleed more easily in most women (Bassey et al., 2010). Pregnancy gingivitis typically peaks during the third semester of pregnancy.<sup>7</sup> This study showed that most women have never visited the Dentist (45.3%), despite the fact that they have knowledge of oral health. Similar findings have been reported by other authors (Offenbacher et al., 1998; Jarjoura et al., 2005; Beltrán-Aguilar et al., 2005)

There is a need to inform pregnant women on the role of good nutrition on oral health as well as the available treatment options for painful gums and teeth in future oral health education sessions.

Interestingly however, the good knowledge and attitude displayed were not fully reflected in the women's oral health practices. While a good proportion of the respondents believed that the mouth should be cleaned twice daily to prevent dental diseases, less than a third of the respondents actually cleaned their mouths twice daily. This pattern has been reported in earlier studies (Offenbacher et al., 1998; Jarjoura et al., 2005). Also, this study showed most women with oral diseases could not access treatment because of financial constraints, if the services were free, most would present themselves for treatments.

Dental caries is contagious and women with poor oral health may harbour high levels of streptococcus mutants in their saliva. Therefore, the mother's oral health that is free of caries would prevent transmission to her offspring. Dental interventions can reduce the risk for prematurity and low birth weight (Offenbacher et al., 1998; Lopez et al., 2002; Jarjoura et al., 2005; Beltrán-Aguilar et al., 2005). Evidence supporting interventions to reduce mother-to-child transmission of cariogenic bacteria supports recommendations for the appropriate use of fluorides denitrifies and dietary control to reduce maternal salivary reservoirs of cariogenic bacteria, particularly for women who have experienced high rates of dental caries (Lopez et al., 2002).

Dental and obstetric teams can be influential in helping to initiate and maintain oral health care during pregnancy to improve lifelong oral hygiene habits and dietary behaviour for women and their families.

Improving training in the importance of oral health, recognition of the oral health problems and knowledge of procedure safety during pregnancy may make health care providers more comfortable with assessing oral health and more likely to address

it with patience. Pregnancy creates a unique opportunity for women to be exposed to dental care and good oral hygiene.

This study is not without limitations; one of the limitations is its reliance on self-reported data which is often subject to biases inherent to questions being asked and record bias. Another limitation is the use of the non-probability method in the selection of study participants.

In addition, the proportion of highly educated women in this survey is not a reflection of the general population where most women are uneducated.

This limits the ability to generalize the results obtained to the larger population. Nevertheless, the results would serve as a veritable tool for designing a workable oral health plan for pregnant women in our Centre.

## CONCLUSION

Regular dental care is a key component to good oral and general health. Ample evidence has shown that oral health care during pregnancy is safe and should be recommended so as to improve the oral health of the women. Pregnancy gives an opportunity to disseminate oral hygiene knowledge to the women and ensure compliance, because this period women are motivated to adopt healthy behaviours, therefore this important period must be utilized to impact oral health on pregnant women.

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## Conflicts of interest

The authors declare that they have no conflicts of interest.

## REFERENCES

Abiola A, Olayinka A, Mathilda B, Ogunbiyi O, Modupe S, Olubunmi O (2011). A survey of the oral health knowledge and practices of pregnant women in a Nigerian teaching hospital. *Afr J Reprod Health*;15(4):14-19.

- Adesina KT, Ernest MA, Tobin AO, Isiaka-Lawal SA, Adeyemi MF, Olarinoye AO, Ezeoke GG (2018). Oral health status of pregnant women in Ilorin, Nigeria. *J Obstet Gynaecol*; 38(8):1093-1098.
- Bassey GO, Anyanechi CE, Ekabua TJ, Ekabua JE (2010). Oral health among antenatal care attendance in Calabar Nigeria. *J Obstet Gynaecol*; 30;143-146.
- Bashorun BO, Anthony IN (2014). Oral health awareness and experience among pregnant women in a Nigerian Tertiary Health Institute. *J Dent Res Rev*; 1:66-69.
- Beltrán-Aguilar ED, Barker LK, Canto MT, Dye BA, Gooch BF, Griffin SO, Hyman J, Jaramillo F, Kingman A, Nowjack-Raymer R, Selwitz RH, Wu T; Centers for Disease Control and Prevention (CDC) (2005). Surveillance for dental caries, dental sealants, tooth retention, edentulism, and enamel fluorosis--United States, 1988-1994 and 1999-2002. *MMWR Surveill Summ*; 26;54(3):1-43.
- Bukar M, Audu BM, Adesina SA, Marupij (2012). Oral health practices among pregnant women in North Eastern Nigeria. *Niger J Clin Practice*; 15;302-305.
- Jarjoura K, Devine PC, Perez-Delboy A, Herrera-Abreu M, D'Alton M, Papapanou PN (2005). Markers of periodontal infection and preterm birth. *Am J Obstet Gynecol*; 192(2):513-519.
- Lopez NJ, Smith PC, Gutierrez J (2002). Periodontal therapy may reduce the risk of preterm low birth weight in women with periodontal disease: a randomized controlled trial. *J Periodontol*; 73:911-924.
- Mills LW, Moses DT (2002). Oral health during pregnancy. *MCN Am J Matern Child Nurs*; 27:75-80.
- Obinna JA, Ugboma HA, Igbiniedion H, Ejikeme BN (2012). Awareness of pregnancy related oral diseases in women attending ante natal clinic in a university Teaching Hospital in Nigeria. *Int J Trop Med*; 7;61-63.
- Offenbacher S, Jared HL, O'Reilly PG, et al (1998). Potential pathogenic mechanisms of periodontitis: associated pregnancy complications. *Ann Periodontol*; 3:233-250.
- Orenuga OO, Sofola OO (2005). A Survey of the knowledge attitude and practices of antenatal mothers in Lagos Nigeria about the primary teeth. *Afr J Med Sci*; 34:28-31.
- Ressler –Maclendes J, Krishna R, Robinson V (2005). Oral health during pregnancy; current research. *J Women's Health (lancet)*;14;880-882.