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## **SOURCES AND QUALITY OF KNOWLEDGE OF ANTE-NATAL CARE PHYSICIANS ABOUT ORAL CONDITIONS IN PREGNANCY: THE NEED TO DO MORE.**

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### **ABSTRACT**

**Context:** During pregnancy, women are at a greater risk of experiencing poor oral health and this can affect pregnancy outcome. It is important that ante-natal care givers be knowledgeable on possible oral conditions that can affect the pregnant woman so that she can be adequately managed.

**Objective:** To evaluate the sources and quality of knowledge of ante-natal care physicians about oral conditions in pregnancy.

**Study design, Setting and Subjects:** A descriptive cross-sectional study of ante-natal care physicians at the University of Benin Teaching Hospital.

**Main outcome measures:** Information on demographic characteristics, knowledge of oral conditions in pregnancy, effect of oral micro-organisms on mother and child, efficacy of routine scaling and polishing on reduction of oral micro-organisms and sources of respondents' dental information.

**Result:** 81.3% and 30.8% of the respondents knew that gingivitis and periodontal disease respectively were sometimes seen in pregnancy. Majority of the respondents thought that oral micro-organisms had effects on mother and child. Only 42.1% thought that conventional scaling and polishing would reduce the oral micro-organisms. There was statistically significant relationship between quality of knowledge and dental textbook as source of dental information.

**Conclusion:** This study highlights the dearth of knowledge among ante-natal care physicians about oral diseases which may have consequences on maternal and fetal health, emphasizing the need to do more.

### **INTRODUCTION**

Physiologic changes that occur during pregnancy can place a tremendous strain on parts of a woman's body, including the mouth.<sup>1</sup> Maternal oral disease has been associated with pre-term births<sup>2-5</sup>, development of pre-eclampsia<sup>6,7</sup> and delivery of a "small-for-gestational-age" infant<sup>2,4,5</sup>. The control of oral diseases in pregnant women has the potential to reduce the transmission of oral bacteria from mothers to their newborn.<sup>8</sup>

Various oral conditions are sometimes seen during pregnancy. Gingivitis is reported to be the most common oral disease during

pregnancy with a prevalence rate of 60-75%.<sup>9</sup> It tends to appear in the 2<sup>nd</sup> month of pregnancy coinciding with an increase in estrogen and progesterone concentrations and reaches maximum intensity in the 8<sup>th</sup> month, after which it decreases.<sup>10</sup>

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It has been reported that periodontal disease, a bacterial infection which is detectable in up to 30% of pregnant women, can lead to destruction of the gums, bones and periodontal ligaments supporting the teeth and has been linked with premature delivery and low birth weight outcome among infants.<sup>1,11-15</sup> A national oral health survey in Sri Lanka in 2003 showed that 74.8% to 88.8% of pregnant women required some form of periodontal care.<sup>16</sup> This highlights the magnitude of the problem regarding periodontal diseases in pregnancy.

The Sri Lanka survey also reported that 47-80% of pregnant women might need treatment for dental caries.<sup>16</sup> It has been reported that nausea and vomiting during pregnancy can cause extensive erosion of the tooth surface leading to deteriorating oral health situation.<sup>1</sup> The increased risk of tooth erosion and caries seen in pregnancy is mainly due to the increase in cariogenic micro organisms produced by the nutritional changes and lesser attention to oral health coinciding with a drop in salivary pH and buffer effect.<sup>9,10</sup>

Other oral changes that can appear during pregnancy are aphthae, salivary changes (variation in pH and composition), an increased frequency of TMJ disorders, malasma (a skin alteration that usually improves after delivery), and pyogenic granulomata.<sup>10,17,18</sup> Ludwig's angina has also been reported in pregnancy.<sup>19</sup> In order to prevent such life-threatening emergencies, it is important that minimal complaints of dental pain by pregnant women should not be neglected.

During pregnancy, women are at a greater risk of experiencing poor oral health.<sup>20,21</sup> It is important therefore that ante-natal care givers be knowledgeable on possible oral conditions that can affect the pregnant woman so that she can be

adequately managed. There is a paucity of reports on the knowledge of oral conditions among ante-natal care givers.

The aim of this study therefore, was to evaluate the sources and quality of knowledge of ante-natal care physicians about oral conditions in pregnancy.

## **SUBJECTS / MATERIALS AND METHODS**

The study was a descriptive cross-sectional study of ante-natal care physicians at the University of Benin Teaching Hospital. The target population was ante-natal care physicians who attended a departmental seminar. All physicians who rendered ante-natal care to pregnant women who were present for the departmental seminar and gave informed consent to participate in the study were recruited for the study. The research tool was a pre-tested self-administered questionnaire. Informed consent was sought from the respondents before the administration of the questionnaires. The questionnaire elicited information on demographic characteristics, knowledge of oral conditions in pregnancy, effect of oral micro-organisms on mother and child, efficacy of routine scaling and polishing on reduction of oral micro-organisms and sources of respondents dental information.

A total of 18 questions were used to assess the respondents' knowledge of oral conditions in pregnancy. Each correct answer was given a score of 1. All correct answers were summed up and graded as follows:

Good knowledge 13-18

Fair knowledge 7-12

Poor knowledge 0-6

The data obtained were analyzed using Statistical Package for Social Sciences (SPSS)

version 17.0. The analysis was done using frequency distribution, cross tabulations and test of significance with chi square.  $P < 0.05$  was considered statistically significant.

## **RESULTS**

A total of 110 questionnaires were administered, 107 were filled and retrieved giving a response rate of 97.3%. The male to female ratio was 1:0.3 with most (40.2%) of the respondents in the 31-35years age group and majority (62.6%) Registrars (Table 1).

Assessment of knowledge of common oral conditions revealed that 87 (81.3%) and 33 (30.8%) of the respondents knew that gingivitis and periodontal disease respectively were sometimes seen in pregnancy. The knowledge of other oral conditions sometimes seen in pregnancy was reported for epulis (pyogenic granuloma) by only 25 (23.4%), gingival bleeding by 72 (67.3%), tooth surface loss by 34 (31.8%), dental caries by 74 (69.2%) and hypersalivation by 86 (80.4%).

About half, 54 (50.5%) of the respondents had a poor knowledge of oral conditions sometimes seen in pregnancy (Table 2). A majority (66.7%) of the Senior Registrars and half (50.0%) of the House Officers respectively had a poor knowledge of oral conditions sometimes seen in pregnancy although this was not statistically significant (Table 3). Eighty-five (79.4%) of the respondents thought that oral micro-organisms had effects on mother and child. However, only 45 (42.1%) thought that conventional scaling and polishing would reduce the oral micro-organisms.

Fifty-seven (53.3%) and 53 (49.5%) of the respondents had one of the sources of their dental information from medical textbooks and

discussions with dental colleagues respectively while only 8 (7.5%) got dental information as part of structured training at the postgraduate level (Table 4). More than half (57.9%) of those who had dental textbooks as one of their sources of dental information sources had average knowledge of oral conditions sometimes seen in pregnancy and this was statistically significant (Table 5).

More of the respondents with a good knowledge of oral conditions sometimes seen in pregnancy reported discussion with dental colleagues as one of their sources of dental information. The need for obstetricians to be well-educated on oral health care was expressed by 102 (95.3%) respondents with 41(38.3%) strongly agreeing, 2 (1.9%) undecided while 3 (2.8%) disagreed.

## **DISCUSSION**

The need for better patient education and communication regarding oral health care has been advocated especially during pregnancy.<sup>22</sup> It is pertinent therefore that ante-natal care givers be knowledgeable about the oral conditions seen in pregnancy so they can be alert to the need for appropriate referral for dental consultation by the pregnant patient.

A high questionnaire response rate of 97.3% was recorded in this study. This can be attributed to the conduct of this study in a tertiary health institution whose primary responsibility is provision of health care and research. A male to female ratio of 1:0.3 suggests that medicine is still largely a male dominated profession in Nigeria.

A majority of the respondents knew that gingivitis is sometimes seen in pregnancy. This is in keeping with the report that gingivitis is the most common oral disease during pregnancy.<sup>9</sup> Less than a third of the respondents knew that

periodontal disease is sometimes seen in pregnancy despite the numerous reports and the magnitude of problem regarding periodontal disease in pregnancy<sup>1,11-15,23</sup> Epulis (pyogenic granuloma) has been reported to be more common in pregnancy<sup>24</sup> but only 23.4% of the participants reported it as one of the oral conditions seen in pregnancy. Hypersalivation was reported by 80.4% of the participants, this finding may be related to the spitting seen commonly in pregnancy which may be more related to the nauseous feeling more than an increase in the flow of saliva<sup>25</sup> because it has been noted that when salivary flow is measured in pregnancy there is no increase.<sup>26</sup>

About half 54 (50.5%) of the respondents had a poor knowledge of oral conditions sometimes seen in pregnancy. This lends credence to the fact that oral health needs to be incorporated into the training of medical students and other health workers and its importance emphasized.<sup>26</sup>

Only 7.5% of the participants reported getting dental information as part of structured training at the postgraduate. This emphasizes the need for incorporation of oral health into the medical curriculum both at undergraduate and postgraduate levels. Fifty-seven (53.3%) and 53 (49.5%) of the respondents reported one of the sources of their dental information from medical textbooks and discussion with dental colleagues respectively. This shows that both formal and informal ways are employed to get information to improve rendering of care to patients.

More than half (57.9%) of those who had one of their dental information sources as dental textbooks had an average knowledge of oral conditions sometimes seen in pregnancy and this was statistically significant. This is probably because dental textbooks have more details

regarding oral health in pregnancy.

A majority of respondents with a good knowledge of oral conditions in pregnancy reported discussion with dental colleagues as one of their sources of dental information. The need for obstetricians to be educated on oral health care was expressed by 95.3% of the participants and this has been recommended in previous literature.<sup>26</sup>

## **CONCLUSION**

This study has highlighted the dearth of knowledge among ante-natal care physicians about oral diseases which may have consequences on maternal and fetal health. Formal and informal sources of knowledge of oral conditions relevant in pregnancy were identified in this study. The need to do more by way of incorporation of more structured dental education into the undergraduate and postgraduate curricula of potential and actual ante-natal care givers is worthy of serious attention.

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**Table 1:** Demographic characteristics of the respondents

Characteristics	Frequency	Percentage
	n	%
<b>Age (years)</b>		
21-25	5	4.7
26-30	25	23.4
31-35	43	40.2
36-40	23	21.5
41-45	7	6.5
46-50	3	2.8
>50	1	0.9
<b>Gender</b>		
Male	85	79.4
Female	22	20.6
<b>Status</b>		
House officer	22	20.6
Registrar	67	62.6
Senior Registrar	18	16.8
<b>Total</b>	<b>107</b>	<b>100.0</b>

**Table 2:** Knowledge of Oral Conditions Sometimes Seen In Pregnancy

Knowledge	Frequency	Percent
	n	%
Good Knowledge	8	7.5
Fair Knowledge	45	42.1
Poor Knowledge	54	50.5
<b>Total</b>	<b>107</b>	<b>100.0</b>

**Table 3:** Association between Knowledge Of Oral Conditions Sometimes Seen In Pregnancy And Status Of The Respondents

	Knowledge of oral conditions				Status
	Good n(%)	Average n(%)	Poor n(%)	Total n(%)	
House officer	2 (9.1)	9 (40.9)	11 (50.0)	22 (100.0)	
Registrar	6 (9.0)	30 (44.8)	31(46.3)	67 (100.0)	
Senior Registrar	0 (0.0)	6 (33.3)	12 (66.7)	18 (100.0)	
<b>Total</b>	<b>8 (100.0)</b>	<b>45 (100.0)</b>	<b>54 (100.0)</b>	<b>107 (100.0)</b>	

**P=0.3**

**Table 4:** Sources Of Dental Information

Source of dental information	Frequency	Percent
	n	%
Internet	33	30.8
Dental textbooks	19	17.8
Medical textbooks	57	53.3
Discussion with dental colleagues	53	49.5
Part of structured undergraduate training	32	29.9
Part of structured postgraduate training	8	7.5

\* Respondents gave multiple responses

**Table 5:** Association between knowledge of oral conditions sometimes seen in pregnancy and sources of dental information among the respondents

Source of dental information	Knowledge of oral conditions				p value
	Good n(%)	Average n(%)	Poor n(%)	Total n(%)	
Internet	3 (9.1)	16 (40.9)	14 (42.4)	33 (100.0)	<b>0.5</b>
Dental textbooks	3 (15.8)	11 (57.9)	5(26.3)	19(100.0)	<b>0.04</b>
Medical textbooks	2 (3.0)	26 (45.6)	12 (66.7)	57 (100.0)	<b>0.2</b>
Discussion with dental colleagues	6 (11.3)	17 (32.1)	30 (56.6)	53 (100.0)	<b>0.2</b>
Part of structured undergraduate training	3 (9.4)	11 (34.4)	18 (56.3)	32 (100.0)	<b>0.7</b>
Part of structured postgraduate training	1 (12.5)	4 (50.0)	3 (37.5)	8 (100.0)	<b>0.7</b>

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