

Knowledge of dental practitioners on the management of oral conditions in pregnancy in South Nigeria

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ABSTRACT

Objective: Dental care is often avoided and misunderstood in pregnancy. The objective of this study was to evaluate the knowledge of dentists on the provision of dental care during pregnancy. **Subjects and Methods:** A cross-sectional descriptive study among 76 dental practitioners in two Tertiary Health Institutions in Nigeria. The study participants were approached at their duty posts and informed consent was obtained before administering the questionnaire. Data were collected using pretested self-administered questionnaire and analyzed using IBM SPSS statistics version 20.0 (New York, United States). **Results:** Forty-seven (63.5%) of the participants were registrars, 48 (64.9%) were more than 35 years, and 40 (54.1%) had practiced for more than 5 years. Majority, 61 (82.4%) of the participants were willing to provide dental treatment during pregnancy. Registrars, 39 (64%) were significantly ($P = 0.03$) more likely to provide dental care during pregnancy than house officers. While 44 (59.5%) of dentists knew the best time to take dental radiograph was the second trimester of pregnancy, 48 (64.9%) knew dental radiographs could be taken in any trimester of pregnancy. Dentists who knew it was safe to use composite and amalgam during pregnancy and perform root canal treatment in the first trimester of pregnancy were 56 (75.6%), 59 (79.5%) and 13 (17.6%), respectively. **Conclusion:** Though the knowledge of the dentists on dental care during pregnancy was good, this need to be improved upon. Therefore, there is a need to develop guidelines and train dentists on dental care during pregnancy.

Key words

Dental care, dental surgeon, oral conditions, pregnancy

INTRODUCTION

Pregnancy involves complex physical and physiological changes characterized by series of adaptive changes in body structure with an increased production of estrogens, progesterone and gonadotropins. These hormonal changes may present both transient and irreversible conditions as well as modifications that are considered pathological.^[1]

Different oral lesions are reported to be common during pregnancy. Pregnant women are particularly susceptible to gingival and periodontal diseases. Other oral lesions reported in pregnancy include caries, epulis, pyalism

or xerostomia and erosions.^[2,3] These biochemical and hormonal changes in pregnancy enhance the risk.

Available evidence has established association between oral health and pregnancy and its outcome.^[3-8] Prevalence of periodontitis is known to be increased in pregnancy and may result in preterm birth, low birth weight and preterm low birth weight.^[5,6] Despite the high prevalence of oral health problems during pregnancy and the established association between pregnancy and oral health, a lot of pregnant women do not seek dental care during pregnancy.^[9-17] The few who seek dental care are refused treatment by dentists.^[18] It can be quite devastating when a pregnant woman with oral health problem presents at a dental clinic and treatment is rescheduled till after delivery.^[9,16]

Patients, physicians, and dentists are cautious, often avoiding treatment of oral health issues during pregnancy. Various reasons have been reported why dental practitioners avoid providing treatment during pregnancy. Some dentists avoid treating pregnant women

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because of confusion, concern about possible risks or misconception about the safety and importance of dental treatment during pregnancy.^[18] There are also no standard guidelines on the oral health care and dental treatment for pregnant women^[18,19] and this has subjected some oral health care professionals to consciously deny these pregnant women based on mere concern for the perceived risks of dental treatment modalities to both the baby and the mother. Lack of professional skills and knowledge has also been reported.^[20]

As a consequence of the recognized association between oral health and pregnancy, development of brochures and document on oral health for pregnant patients and increased interest in general health education of women during pregnancy, it is expected that medical practitioners would refer more pregnant women with oral lesions to the dentist with anticipated increase utilization of dental services. Hence, the dentist needs to be properly positioned and equipped to provide oral care during pregnancy. Again, studies have been conducted on the knowledge of medical doctors and dentists on the association between oral health and pregnancy outcome in other parts of the world,^[18,20,21] no such documented studies on dentists in Nigeria. The aim of this study therefore, was to assess the knowledge and practice of dental practitioners regarding prenatal dental care.

SUBJECTS AND METHODS

Study population and location

The study population consisted of 76 dentists practicing in two Tertiary Health Institutions in Nigeria: University of Benin Teaching Hospital, Benin City, Edo State and University of Port Harcourt Teaching Hospital, Alakahia Port Harcourt, Rivers State.

Study design

The study was a cross-sectional descriptive study, among dental practitioners in two Tertiary Health Institutions in Nigeria.

Sample size and sampling

Convenience sampling method was employed in the selection of the study participants. The study participants were approached at their duty posts (clinics), and informed consent was obtained before administering the questionnaire. The questionnaires were completed and returned immediately by the participants, whereas those busy with patients completed and returned their questionnaires the next day. A total of 76 questionnaires were distributed to the dental practitioners and 74 were returned and found usable.

Data collection

Pretested self-administered questionnaire was employed for this study. Knowledge on the safety of routine dental

procedures (amalgam filling, root canal treatment (RCT), and extraction); appropriateness and safety of X-rays and the prescription of common medications during pregnancy were assessed. Furthermore, knowledge of the trimester of pregnancy most appropriate and suitable for dental procedures was considered. Data were also collected on the willingness of dentists to provide dental care during pregnancy.

Data analysis

Collected data were analyzed using IBM SPSS statistics version 20.0 (New York, United States). Frequency statistics and cross tabulation were done and Chi-square test was used to test for statistical significance at the critical value $P < 0.05$.

RESULTS

A total of 76 questionnaires were distributed to the participants, 74 of these were completed and returned with a response rate 97.4%. Forty-seven (63.5%) of the participants were registrars, 48 (64.9%) were more than 35 years and 40 (54.1%) had practiced for more than 5 years [Table 1]. Majority 61 (82.4%) of the participants were willing to provide dental treatment during pregnancy, 13 (17.6%) who were not willing provide dental treatment during pregnancy gave possible harm to developing fetus and loss of pregnancy as their fear.

While 44 (60%) of dentists knew the best time to take dental radiograph was the second trimester of pregnancy, 58 (78.4%) knew radiographs for dental check-up are best taken after delivery. Forty-eight (64.9%) of the dental practitioners knew dental radiograph could be taken at any trimester in pregnancy.

The respondents who knew it was safe to administer local anesthetic agents containing adrenaline in pregnancy were 27 (36.5%), 47 (63.5%) knew that diazepam; midazolam and lorazepam could be administered in pregnancy. Furthermore, 28 (37.8%) knew penicillin, amoxicillin and cephalixin were safe and drug of choice during pregnancy, 47 (63.5%) knew acetaminophen as the drug of choice for dental pain during pregnancy.

Table 1: Demographic information of the subjects

| Variables | Number | Percentage |
|-------------------|--------|------------|
| Age in years | | |
| ≤35 | 26 | 35.1 |
| >35 | 48 | 64.9 |
| Designation | | |
| House officers | 27 | 36.5 |
| Registrars | 47 | 63.5 |
| Years of practice | | |
| ≤5 | 34 | 45.9 |
| >5 | 40 | 54.1 |

Dentists who knew it was safe to use composite and amalgam during pregnancy and perform RCT in the first trimester of pregnancy were 56 (75.6%), 59 (79.5%) and 13 (17.6%) respectively. While 48 (64.9%) of the participants knew it was safe to provide dental care anytime in pregnancy, 47 (63.5%) agreed dental extractions are best done after delivery. Majority 62 (83.8%) agreed that pregnant women with cellulitis are best treated as in-patient. These are illustrated in Table 2.

Registrars, 39 (64%) were significantly ($P = 0.03$) more likely to provide dental care during pregnancy than house officers. Dentists, 33 (54%) who had practiced for more than 5 years were also more likely to provide dental care during pregnancy than those that had practiced for <5 years, difference was however not significant [Table 3].

DISCUSSION

The objective of dental health care in pregnancy is to establish a healthy oral environment through adequate plaque control by brushing, flossing and professional prophylaxis including scaling, root planning and polishing.^[10] Dental care can be safely provided at any time during pregnancy^[3,6,22] allowing pregnant women to achieve an optimal level of oral health throughout pregnancy. Unfortunately, dentists are cautious, often avoiding treatment of oral health issues during pregnancy.

In this study, over 80% of dentists were willing to provide dental care and 65% of dentists knew it was safe to provide dental care in any trimester of pregnancy. Zanata

et al.^[18] in their study reported that 73% of dentist felt safe to perform dental care during pregnancy. The few who were not willing to provide dental care gave possible harm to developing fetus and loss of pregnancy as their fear. The fear of not providing dental care due to concern for safety and appropriateness of dental care during pregnancy is unfounded. Though dental care, particularly urgent care can be safely performed at any gestational age,^[22,23] ideally, dental procedures should be scheduled during the second trimester of pregnancy when organogenesis is complete.

The use of dental radiograph during pregnancy has been a contentious issue. The teratogenic risk of radiation exposure from intra-oral films is 1000 times less than the natural risk of spontaneous abortion or malformation.^[17] The risk is further reduced with the use of lead aprons and thyroid shields, collimators, E-speed films, avoidance of retakes. Dental radiography can be performed during pregnancy for emergency purposes.^[24] Where possible; radiographs should be delayed until the second trimester. Radiographs taken for regular check-ups are best taken after delivery. The findings in this study did not meet standard requirement for the use of radiograph during pregnancy. Approximately, 65% and 60% respectively of the dentist knew dental radiograph could be taken in emergency at any trimester and the best time to take dental radiograph was in second trimester of pregnancy. This is in contrast to the study done in Brazil^[18] where 16.2% and 37.8%, respectively knew that dental radiograph was safe throughout in pregnancy and is best taken in second trimester. The variation may be due to difference in the study design and population studied.

Furthermore, about a quarter of the study population was not aware of the safety of amalgam, glass ionomer

Table 2: Willingness of dentists to treat patient during pregnancy and response to knowledge statement

| | Number | Percentage |
|--|--------------------|---------------------|
| Willingness to treat | | |
| Yes | 61 | 82.4 |
| No | 13 | 17.6 |
| | "True" (number, %) | "False" (number, %) |
| Best time to take radiograph is second trimester | 44 (59.5) | 30 (40.5) |
| Dental radiographs can be taken in any trimester | 48 (64.9) | 26 (35.1) |
| Radiograph for dental check-up is best after delivery | 58 (78.4) | 16 (21.6) |
| Local anesthetics containing adrenaline are safe in pregnancy | 27 (36.5) | 47 (63.5) |
| Depending on the trimester diazepam, midazolam and lorazepam can be given in pregnancy | 27 (36.5) | 47 (63.5) |
| Penicillin, amoxicillin and cephalixin are safe in pregnancy | 28 (37.8) | 46 (62.2) |
| Acetaminophen is the drug of choice to relieve dental pain in pregnancy | 47 (63.5) | 27 (36.5) |
| Dental treatment can be provided in any trimester | 48 (64.9) | 26 (35.1) |
| GIC and composite can be used for restoration in pregnancy | 56 (75.6) | 18 (24.4) |
| Amalgam is safe in pregnancy | 59 (79.5) | 15 (20.5) |
| RCT can be done in first trimester of pregnancy | 13 (17.6) | 61 (82.4) |
| Pregnant woman with cellulitis could be treated in any trimester | 62 (83.8) | 12 (16.2) |
| Dental extractions can be in first trimester | 47 (63.5) | 27 (36.5) |

GIC – Glass ionomer cement, RCT – Root canal treatment

Table 3: Cross tabulation between willingness to treat, rank of dentists and years of practice (n=61)

| | Willingness to provide treatment during pregnancy | |
|---------------------------|---|------------|
| | Number | Percentage |
| Rank dentists | | |
| House officers | 22 | 36.0 |
| Registrars | 39 | 64.0* |
| Years of practice (years) | | |
| <5 | 28 | 46.0 |
| >5 | 33 | 54.0 |

*P=0.03

cement (GIC) and composite restorative materials in pregnancy. Lee *et al.*^[20] in assessing the appropriateness of restorative materials in pregnancy, reported that less than one-third of the dentists were not aware of the safety of composite therefore would not perform composite restorations at any trimester in pregnancy. The use of amalgam, GIC and composite as restorative materials are safe in dentistry. There is no published evidence that amalgam exposure during pregnancy have deleterious effect such as spontaneous abortions or birth defects.^[25]

Root canal treatment can be performed in the first trimester of pregnancy. The most common complaint in pregnancy is dental pain and infection. Persistent pain during pregnancy is a stressful condition, which could cause lack of sleep, restlessness and distress from toothache and this may have negative outcomes on both the mother and the fetus. Infection is another serious condition, which can lead to significant danger for both the expectant mother and the fetus. If left untreated it could spread to surrounding spaces causing space infections and could end-up spreading to the circulation causing septicemia. One of the modalities of treating dental is RCT. Only few dentists knew that RCT can be done in first trimester of pregnancy.

Approximately, one-third of the participants were conversant with the fact that local anesthetic agents containing adrenaline, penicillin, amoxicillin and cephalexin are safe in pregnancy. In addition, while 63.5% knew the use of acetaminophen was safe in pregnancy, 36.5% of the dentists did not know that sedatives should be avoided during pregnancy. The use of acetaminophen by dentists in this study is comparable to the result obtained in Brazil^[18] where 67.6% considered it safe and drug of choice to relieve dental pain during pregnancy. The result of this study on the use of antibiotics and local anesthetic agent containing adrenaline was different from that obtained from a Brazilian study.^[18] In the study 78.3% prescribed penicillin and cephalosporin and 19% knew that local anesthetic agent containing adrenaline was safe. Whereas local anesthetic agents containing adrenaline, acetaminophen, penicillin, amoxicillin and cephalexin are safe in pregnancy, diazepam, midazolam

and lorazepam are avoided in pregnancy irrespective of the trimester. Erythromycin base or clindamycin can be used in patient allergic to penicillin. Erythromycin estolate, is associated with cholestatic hepatitis in pregnancy and should be avoided.

The knowledge of the study population on the administration of drugs in pregnancy was poor. Therefore, so long as this gap in knowledge persists, dentists will continue to adopt avoidance pattern in dental management of oral conditions in pregnancy. To reduce this gap in knowledge, emphasis needs to be placed on the training of dentists and development of guidelines to improve oral care during pregnancy.

The burden of oral diseases and unmet dental treatment need among pregnant women in Nigeria is high.^[26-28] In a longitudinal randomized control trial Umoh *et al.*^[29] have reported that maternal periodontal disease has a significant negative influence on life birth weight of babies and periodontal treatment was effective in preventing low birth weight deliveries. Therefore, dental care during prenatal period should be stimulated as a public health measure, aiming at an integrated action of medical, dental and nursing teams to improve the quality of life of the pregnant woman and the baby.

The self-reported response of the participants and small sample size constitute limitation to this study. Therefore, further study with larger sample is recommended to verify the findings of this study. Due to this bias, the results of the present study cannot be extrapolated, but indicate that some aspects related to dental care during pregnancy should be further diffused to allow the establishment of proper treatment protocols.

CONCLUSION

Though the knowledge of the dental practitioners on management of oral conditions during pregnancy was good, this need to be improved upon. A few numbers of dentists were not aware that it was safe to take radiograph during pregnancy. In addition, some were still not aware of the appropriate drug to administer and treatment to perform during pregnancy. This indicates the need for emphasis to be placed on this aspect of the dental curriculum in the training of undergraduate and postgraduate students. It also suggests the need to update health care professionals involved in prenatal assistance in order to establish more accurate guidelines.

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