

A Six-Month Single-Center Study in 2021 on Oral Manifestations during Pregnancy in Bhubaneswar, India

Dear Editor

During pregnancy, the female body undergoes significant physiological and hormonal changes, including oral cavity.¹ Common oral conditions during pregnancy include gingivitis, tooth movement, erosion of teeth, dental caries, excessive halitosis, gingival hyperplasia, gingival polyps, enamel erosion, abrasion of teeth, tooth loss, and periodontitis.² Oral health care is therefore important for the general health of both mother and infant.³ According to the hypothesis, oral bacteria colonize the umbilical cord directly, causing a local inflammatory reaction leading to preterm birth and other adverse effects. During the second trimester of pregnancy, the proportion of anaerobic Gram-negative bacterial species and aerobic species in dental plaque increases, amplifying cytokine production. If these bacteria enter the bloodstream and cross the placental barrier, they may increase physiological levels of prostaglandin E₂ (PGE₂) and tumor necrosis factors (TNFs) in the amniotic fluid and cause premature labor.⁴ Pregnant women may be unaware of the effects of oral health on both the fetus and their pregnancy. Patients and dentists generally avoid any dental treatment during the first trimester of pregnancy due to a lack of medical guidelines for dental management, lack of practice standards, and fetal health concerns during the dental procedure. In contrast, when performed during the second trimester of pregnancy, all dental procedures such as extractions, radiographs, scaling, and fillings are considered safe. However, the use of antibiotics and other drugs should be limited or avoided. The present study aimed to better understand dental and oral manifestations in pregnant women from Eastern India, as well as to assess their knowledge and awareness about dental and oral care during pregnancy and the consequences of neglect.

This study commenced in November 2021 at the Institute of Medical Sciences and SUM Hospital (IMS and SH) of Siksha 'O' Anusandhan (SOH) Deemed to be University, Bhubaneswar, India. A 21-item self-administered questionnaire was used to survey pregnant participants to determine oral symptoms developed, oral hygiene measures taken, and the number of visits to dental clinics during pregnancy. The questionnaire consisted of four sections, namely demographic characteristics of the participants, knowledge of general and oral health during pregnancy, dental checkups during pregnancy and barriers to dental care, and oral health experiences of pregnant women. Based on the results of the test-retest, the reliability and validity of the questionnaire were acceptable. Data were analyzed using Fisher exact test with SPSS statistical software (version 25.0), and qualitative variables were expressed as frequency and percentages. The study was approved by the Scientific Review Committee of the IMS and SUM Hospital (code: IEC/IMS.SH/SOA/2021/185A). All participants provided informed consent.

A total of 110 pregnant participants were included in the study. Conditions associated with oral hygiene status during pregnancy were loss of teeth ($P < 0.001$), facial oral pigmentation ($P = 0.006$), erosion of enamel ($P = 0.023$), gingival hyperplasia ($P = 0.002$), and gingivitis ($P = 0.006$). Oral hygiene status during pregnancy was fair, good, and poor in 68 (61.8%), 40 (36.4%), and 2 (1.8%) of the participants, respectively. In addition, the results showed other oral manifestations, such as halitosis, gingival polyps, periodontitis, abrasion of teeth, and dental caries. A recent study conducted in north India reported that 63% of women stopped brushing their teeth after delivery, and 36% avoided hot and cold drinks due to fear of losing teeth.⁴ A cross-sectional study of pregnant women in Germany reported a lack of knowledge and awareness of dental care in 22% of women from a low socioeconomic status group, which was associated with a low level of education.⁵ In our study, 62% of the participants had fair oral hygiene status, 16% had periodontal diseases, and 22% had dental caries. We also found a high incidence (17%) of gingival polyps, which was attributed to poor oral hygiene status or improper brushing habits. Although beyond the scope of our study, we found that fear of potential harm to the fetus might have been a factor in preventing women from having regular dental checkups during pregnancy. This finding underscores their lack of awareness of the association between dental diseases and pregnancy, e.g., preterm birth and other complications.

Pregnancy is an ideal time for women to be motivated to change their behaviors and lifestyle for the benefit of fetal health. Midwives can play an important role in improving perinatal outcomes by screening and educating pregnant women about dental health, associated risk factors, and preventive measures. Herein, we disseminate information about the significance of oral health care during pregnancy. Health promotion initiatives should provide women with the best possible access to oral health care. The main limitation of the study was the lack of post-pregnancy follow-up to assess the dental status of the participants.

Keywords • Oral manifestations • Dental care • Pregnancy • Gingivitis

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Authors' Contribution

R.B. and T.P: Conception of the study, interpretation of data, drafting and revising; S.B: Conception of the study and drafting. N.P: Conception of the study and revising; J.M: Conception of the study and revising. All authors have read and approved the final manuscript and agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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