

Original Article

An Assessment of Gynecologists' Knowledge of the Relationship between Periodontal Diseases and Pregnancy Outcomes in Sri Ganganagar District: A Cross-sectional Study

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ABSTRACT

Introduction: Neonatal mortality and preterm low birth weight in babies can be brought on by a lack of knowledge and attitude about oral health. In order to provide pregnant women with proper and consistent prenatal care, medical professionals play a critical role in this area. The understanding of medical professionals on periodontitis and its connection to unfavorable pregnancy outcomes must thus be assessed.

Methodology: A cross-sectional study was conducted in Sri Ganganagar district among 100 randomly chosen gynecologists using a questionnaire. The questionnaire was distributed to the gynecologists by e-mails, google forms, and personal interactions who were requested to anonymously complete the questionnaire.

Results: It was found that gynecologists were aware of the facts and encouraged patients to seek dental care without pressuring them. 90% agreed that periodontal disease is more prevalent among pregnant women and 76% educate their patients about the link between pregnancy and periodontal disease.

Conclusion: Lectures and hands-on workshops might aid in educating gynecologists about the significance of dental health during pregnancy. Thus, maternal and newborn problems may be less common when using a bilateral multidisciplinary procedure. Gynecologists and dentists should work together to promote maternal dental health and lessen postpartum problems.

Keywords: Oral health, Periodontal disorders, Unfavorable pregnancy outcomes.

INTRODUCTION

The oral cavity reflects general health and also serves as a gateway for disease to spread throughout the body. When compared to non-pregnant women, pregnant women's oral health is frequently affected. It entails several significant hormonal changes that have an epoch-making influence throughout pregnancy.¹ Pregnancy related oral health issues include gingivitis, pregnancy granuloma, and periodontitis.² The problem is exacerbated by a lack of understanding, the prevalence of misbelief, and a bad attitude towards oral care during pregnancy. Gynecologists are the most often met healthcare practitioners since pregnant women visit them for regular prenatal examinations. As a result, they can play a crucial role in enhancing the dental health of pregnant women by prescribing further treatment. Unfortunately, gynecologists have little training in oral health, which may be detrimental.

Periodontitis is a chronic inflammatory illness of the gingiva and its supporting tissues that has been linked to systemic infection, resulting in a variety of systemic ailments such as diabetes, hypertension, cardiovascular problems, and chronic renal failure.³ Premature delivery, low birth weight (LBW) infants, preeclampsia, miscarriage, or early pregnancy loss have all been linked to periodontal infection.⁴ Periodontal assessment and proper treatment are advised by the American Academy of Periodontology for pregnant women and women trying to conceive.⁵ Pregnant women should practice good dental hygiene since they are more susceptible to gingivitis and periodontitis which can harm the child's health.

Hence, the aim of the present study was to evaluate the

knowledge and awareness regarding the association between periodontal disease and pregnancy outcomes among gynecologists and referral patterns to periodontists in Sri Ganganagar district.

METHODS

A one month of cross-sectional research was carried out on practicing gynecologists in Sri Ganganagar district of Rajasthan, India. The study was approved by the Institutional Ethics Committee (No. 21 MGSDC/EC/2021). Inclusion criteria for this study were gynecologists who have practiced in this field for at least 5 years and willingness to participate. Using simple random sampling, 100 gynecologists who agreed to participate after being briefed about the study were enrolled. After obtaining informed consent from all participants, the questionnaire was delivered individually and the participants were given 15 days to complete this questionnaire without discussing it with their fellow gynecologists. To maintain the originality of the survey participants were asked to keep their responses confidential. The responses were collected in the investigator's presence personally/using Google forms. The questionnaire was created by combining questions from prior surveys. Before performing the poll, the questionnaire was verified with ten gynecologists. It consisted of 23 questions designed to assess gynecologists' attitude, knowledge, and awareness of maternal dental health and their referral pattern to periodontists.

RESULTS

In this study, 100 gynecologists took part and completed the questionnaire. Out of these 100 participants, 88% were familiar with the various fields of dentistry and periodontal disorders. 84% of those surveyed had never researched, worked, or presented on the topic of pregnancy and periodontal disease. 90% agreed that periodontal disease is more prevalent among pregnant women. 76% of gynecologists educate their patients about the link between pregnancy and periodontal disease. Gingival tissue changes are caused by hormonal changes according to 80% of participants. 74% stated that pregnant women had dental health issues.

Pregnant women are more prone to bleeding gums according to 82% of practitioners, 60% said that pregnant women complain of tooth mobility more frequently than other persons throughout the gestation period, and 58% reported that pregnant women frequently complain of gum swelling. 90% believe that dental treatment may be

conducted during pregnancy with the second trimester being the most favored period. 66% agree with the idea that periodontal disease might alter the outcome of delivery and 58% of the participants were aware that gum infections during pregnancy result in preterm low birth weight babies. 60% of the participants were unaware that gum infections during pregnancy cause pre-eclampsia.

According to 86% respondents, pregnant women require more periodontal care. 94% were adamant about keeping adequate dental hygiene when pregnant. 80% agreed that observed gingival changes require treatment and when they come across a case with gingival alterations, they all recommend it to a dentist. In the second trimester, 70% of patients are sent to a dentist. 34% of participants recommend pregnant women with gingival alterations to the dentist as needed. For bleeding gums, 24% advised pregnant women to use mouthwash and antibacterial gel. 34% recommended mouthwash antiseptic gel, antibiotics, and analgesics, and vitamin supplements to their patients indicating that they were concerned about their patients' dental health. The responses to the complete questionnaire survey have been depicted in the table.

DISCUSSION

To our best knowledge no study has been undertaken to assess gynecologists' knowledge, awareness, and referral practices regarding maternal oral health and pregnancy outcomes in Sri Ganganagar area. It acts as a reflection of the district's gynecologists' understanding and knowledge. Oral health awareness among general health practitioners, particularly gynecologists, may be insufficient and knowledge of the relationship between maternal periodontitis and unfavorable pregnancy outcomes is limited.

In the current study, 88% of gynecologists agreed that maintaining excellent dental health throughout pregnancy would benefit fetal health. 92% were positive about treating gum diseases during pregnancy to improve pregnancy outcomes, implying that gynecologists are aware of the link between oral health and adverse pregnancy outcomes, which is consistent with the findings of studies conducted by Xiong et al⁶, Suri et al⁷, Tarannum et al⁸, Govindasamy et al⁴, and Shiphalika et al.⁹

Regardless of the high degree of public knowledge and progress in prenatal care, adverse pregnancy outcomes are a serious health issue for health professionals in both developed and developing nations.¹⁰ Preterm birth and low birth weight are the most prevalent causes of newborn

Table: Responses to the survey questionnaire

S. No.	Questions	Yes	No
1	Do you know about the several fields of dentistry?	88%	12%
2	Do you have any knowledge of periodontal diseases?	88%	12%
3	Have you ever researched, worked, or presented on this subject?	16%	84%
4	Do you know that pregnant women are more likely to get periodontal disease?	90%	10%
5	If so, do you advise your patients about this relationship?	76%	24%
6	Did you know that hormonal shifts can trigger changes in gingival tissue?	80%	20%
7	Do pregnant ladies have greater dental issues than ordinary people?	74%	26%
8	Are pregnant women more prone to bleeding gums?	82%	18%
9	Do pregnant women complain of tooth mobility more often than other individuals during gestation period?	60%	40%
10	Do pregnant women frequently complain of gum swelling or atypical growth?	58%	42%
11	Can dental treatment be performed when pregnant?	90%	10%
12	If yes, which trimester is the safest?		2 nd trimesters-100%
13	Are you aware that periodontal disease can have an impact on the result of a pregnancy?	66%	34%
14	Do gum infections cause 'preterm low birth weight delivery' during pregnancy?	58%	42%
15	Could gum infections cause preeclampsia during pregnancy?	60%	40%
16	Do pregnant women require more periodontal health care during their pregnancy to avoid complications?	86%	14%
17	Do you recommend that pregnant women maintain appropriate dental hygiene?	94%	6%
18	Is it necessary to treat the detected gingival changes?	80%	20%
19	Do you refer cases with gingival alterations to a dentist?	100%	
20	During which trimester do you refer patients to the dentist?		2 nd trimesters- 100%
21	How often do you refer pregnant women with gingival changes to the dentist?		34% - as and when required
22	Do you advise pregnant or planning-to-be pregnant women to have an oral health checkup?	42%	58%
23	What do you prescribe to patients complaining of gingival enlargement/bleeding gums?		24% mouthwash and antibacterial gel 34% mouthwash, antibacterial gel, vitamin supplements, analgesics and antibiotics

morbidity and death. Smoking, alcohol consumption, race, parity, low maternal weight, older and younger maternal age, short cervical length, stress, low socioeconomic status, poor nutritional status of the mother, genitourinary infections, and other generalized systemic infections are all risk factors for preterm delivery. These infections cause the production of proinflammatory mediators such as interleukin 1 (IL-1) and tumor necrosis factor alpha (TNF- α) which cause premature labor and low birth weight infants.¹¹

Lipopolysaccharides and bacteria from subgingival plaque as well as pro-inflammatory cytokines from inflamed periodontal tissues can enter the bloodstream during pregnancy, reach the maternal-fetal interface, trigger or worsen the maternal inflammatory response, and increase

plasma levels of prostaglandins and cytokines, thus playing a nonspecific role in a variety of adverse pregnancy outcomes.⁶ Hill et al¹² and Von Minckwitz et al¹³ observed that *Fusobacterium nucleatum* was the most frequently cultured oral species from the amniotic fluid in women with preterm labor and the bacterial products would activate the prostaglandin synthesis and increase the levels of interleukin IL-6 and IL-8, thus inducing hyperirritability of uterine smooth muscles. This further enhances uterine contractions, cervical ripening, cervical thinning, cervical dilation, and onset of preterm labour.¹⁴ It was also shown that mothers of LBW newborns had greater gingival bleeding and calculus build-up.¹⁵ Moreover, hormonal changes during pregnancy have been linked to an increased

susceptibility to gingivitis, gingival bleeding, and pregnancy tumours.⁸

Periodontitis, a chronic and subclinical condition, is suspected of causing inflammation in the embryonic environment. Gingivitis and periodontitis are more common during pregnancy and many pregnant women have bleeding and swollen gums. The majority of gingival alterations are caused by elevated hormone levels during pregnancy along with a lack of dental care. Gingivitis affects 50% to 70% of all pregnant women; this illness is known as pregnancy gingivitis and is caused mostly by a shift in hormone levels.¹¹ Wu et al¹⁶ proposed that the rise in sex hormones (progesterone and estradiol) during pregnancy may have an influence on gingival inflammation independent of IL-1 and TNF- α in GCF. Gynecologists are the primary health care providers for pregnant women and have the ability to check their dental health. Doctors can send pregnant women to a periodontist if they see any gingival or periodontal changes or if they are experiencing pre-natal difficulties. Findings of the current study show that all gynecologists were aware that pregnant women can receive periodontal treatment throughout the second trimester. According to Cohen et al¹⁴, just 85.8% of gynecologists are aware of periodontitis. In this study, gingival bleeding was reported by the majority of the participants (45.5%) which is one of the clinical indications of periodontal disease.¹⁷ A study by Tarannum et al⁸ found that 50% of gynecologists are aware of periodontal clinical symptoms during pregnancy. Cohen et al¹⁷ discovered that 87.4% of them were aware of clinical indications of periodontal disease in the general population and pregnant women, including gingival bleeding and gingival overgrowth.¹⁷ Surprisingly, gynecologists found tooth loss, caries, and alveolar bone degeneration as clinical indications of periodontal disease. This shows that people are unaware of the etiology of periodontal disease.

In the current study, 58% of gynecologists believed that periodontal disease causes preterm delivery in pregnancy and 46% agreed that low birth weight is also a risk factor for periodontal disease in pregnancy. According to Rocha et al¹⁸, 61% of the Obstetricians are aware that periodontal disorders promote preterm delivery and low birth newborns. Shenoy et al¹⁹ found that whereas gynecologists were knowledgeable about the oral symptoms of periodontal disease, they were less knowledgeable about periodontal disease as a risk factor in preterm low birth weight. Another study, conducted by Satyanarayana et al²⁰ found that knowledge of periodontitis is higher in

experienced practitioners with a hospital practice. However, clinical behavior regarding oral and periodontal health did not correlate with such knowledge; thus, specific educational programs to share knowledge between dentists and gynecologists should be developed to encourage teamwork. This outcome was consistent with previous research findings.

Cohen et al¹⁷ discovered that 97.4% of them were considering dental treatment while pregnant. According to Rocha et al¹⁸, 58% of them in Brazil systematically recommend patients to dental treatment. According to Strafford et al²¹, while 64% of obstetricians reported that dental care was vital to normal prenatal care only 49% completed oral health examinations. Just 40% were urged to seek dental treatment by health care practitioners while pregnant. Patil et al²² discovered that gynecologists working at medical schools and hospitals had much higher health awareness than physicians working in private hospitals. According to a survey done by Shah et al²³, gynecologists have minimal training in oral health. They held a session on the importance of dental health, which considerably increased their understanding. They highlighted that a symbiotic interaction between gynecologists and dentists should be maintained through training programs or seminars.

The patients' health care reflects the views of obstetricians about their dental health. It is also important to emphasize the value of self-care to each member of the healthcare team, since they are the information disseminators to individuals under their care. There is a need for patient motivation as well as information to gynecologists regarding all therapies performed by periodontists in order to improve treatment outcomes and patient referrals.

CONCLUSION

Gynecologists are usually the first to identify gum disorders since they provide primary health care throughout pregnancy. They serve as a liaison between pregnant women and dentists, teaching and inspiring them about the significance of dental health throughout pregnancy. According to the results of the current study, gynecologists were aware of the facts and suggested but did not insist on patients for dental care. As a result, gynecologists may benefit from lectures and interactive workshops to raise awareness about the importance of dental health during pregnancy. A bilateral multidisciplinary strategy might thereby limit the occurrence of maternal and newborn problems. Conjoint therapy by gynecologists and dentists

helps to enhance maternal oral health and decrease postnatal problems.

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