

Assessment of Knowledge, Awareness and Attitude about Periodontal Health Among Pregnant Women In D.Y. Patil Medical College and Hospital Navi Mumbai: A Questionnaire Based Survey

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ABSTRACT

Background: Periodontal disease (PD) is an inflammatory disease of the tissues supporting the teeth. PD affects , 70% of adults. Women who develop PD during pregnancy, it's estimated 1 woman in 5, may have a higher risk of adverse pregnancy outcomes. Periodontal pockets are a reservoir of oral microbiota. Modifications in oral microbiota may be considered as a potential mechanism for developing PD during pregnancy. In addition, there is evidence in the literature suggesting an association between periodontal diseases in pregnant women and giving birth to premature, low-birth infants. The purpose of this study was to evaluate the degree of periodontal health knowledge, and awareness, among pregnant women in D.Y. Patil hospital. This was carried out by cross-sectional survey using self-administered, structured questionnaires distributed at maternity ward in D.Y. Patil university. Questionnaire items addressed personal and socio-demographic variables and periodontal health awareness and knowledge of pregnant women. Women (n = 100) were randomly chosen from attendants to these centres. It was observed that the age group of 25-30yrs had higher knowledge scores as compared to the 20-25 age group and were receptive about dental treatment in their 2nd trimester.

Adequate measures should be taken to increase the awareness about this association thereby attempting to prevent the occurrence of adverse pregnancy outcomes. Knowledge and awareness for pregnant women about their teeth and gingival condition is generally poor. Pregnant women need accurate information about their teeth and oral health. Simple educational preventive programmes on oral self-care and disease prevention before and during pregnancy should be provided to improve oral health.

Keywords: Pregnancy, Periodontal Disease, Chronic periodontitis, Pregnant, Gynecology.

INTRODUCTION

The oral cavity is one of the main areas involved in the hormonal changes that take place during pregnancy. Maternal periodontal disease is a highly prevalent condition that has been studied extensively in relation to adverse pregnancy outcomes, including preterm delivery, preeclampsia, and low birth weight. Investigators speculate that hematogenous transport of bacteria and/or pro-inflammatory mediators from sites of

periodontal infection into the placenta, fetal membranes, and amniotic cavity induces pathological processes that lead to these adverse outcomes^[3]. In pregnant women, high concentrations of estrogen and progesterone predispose the periodontal disease^[4]; when associated with oral hygiene deficiency of a population, PD can affect up to 60% of this group^[2]. Periodontal disease during pregnancy may trigger

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an exacerbated immune response with high local and systemic concentrations of inflammatory markers [3] and thereby increase the risk of systemic alterations. Modifications in oral microbiota may be considered as a potential mechanism for developing periodontal disease during pregnancy.

A direct relationship between worsening of periodontal disease and pregnancy has been demonstrated in many studies^[12-17]. During pregnancy, the classical manifestations of periodontal disease (bleeding on probing, increase of pockets depth) are exacerbated. These clinical signs are reduced after childbirth.

A recent study reported that bacteria loading of *Porphyromonas gingivalis* and *Tannerella forsythia* at the 3rd month of pregnancy was associated with worsening in periodontal disease measured by bleeding on probing. Studies have investigated an association between periodontal conditions and possible complications for the pregnant woman and the new born, such as Offenbacher et al. (1998), which indicated the association between this disease and preterm delivery [3]. Several complications associated with periodontal disease, such as gestational diabetes, preeclampsia, intrauterine growth restriction, early abortion, preterm birth, low birth weight and a higher risk of early neonatal infection are reported in the literature. However, there is still no agreement on the actual effects of PD in this group^[3]

Birth weight is considered to be an important factor in determining the chance of survival, growth and development of an infant. It has also been used as an indicator for the health of the entire population under study. Despite advances in perinatal medicine, the prevalence of preterm low birth weight (PTLBW) infants has actually increased. PTLBW is a significant public health issue in both developed and developing countries. [4] Preterm birth is defined as labour or birth before 37 weeks of gestation, and low birth weight is defined as birth weight <2.5 kg. [2] Although about 25% PTLBW occurs without a suspected factor, studies have shown that maternal genitourinary infections during pregnancy, low maternal height, lower socioeconomic status, nutrition, stress, and absence of prenatal care traditionally are the main risk factors.^[5] Periodontal disease accounts for about 18.2% of all PTLBW cases. A systematic review of

randomized controlled trials concludes the association between periodontal disease and PTLBW.^[4] Prevention and treatment of periodontal disease are critical in improving the pregnancy outcomes in patients. Hence, it is necessary that the female population, as well as the attending physicians, is aware of the problem in question.^[6]

MATERIALS & METHODS

Awareness of the relationship between oral health and pregnancy, oral health knowledge, oral hygiene, and dental visits during pregnancy and their willingness for treatment to be surveyed by self-administered questionnaire in patient's local language from 50 pregnant females. The data was collected, summarized and statistically analyzed. The purpose of this study was to evaluate the degree of periodontal health knowledge, and awareness, among pregnant women in D.Y.Patil university Navi Mumbai. This was carried out by cross-sectional survey using self-administered, structured questionnaires distributed at the gynaecology ward at D.Y.Patil hospital. Questionnaire items addressed personal and socio-demographic variables and periodontal health awareness and knowledge of pregnant women. Women (n = 100) were randomly chosen from attendants to these centres.

Table 1: Structured questionnaire.

Questionnaire	YES	NO
1. Do you have any complications in your pregnancy?	10	90
2. Did you have diabetes in the course of your pregnancy ?	2	98
3. Did you undergo any dental treatment?	8	92
4. Do you have any habits of chewing tobacco ?	6	94
5. . Do you know that swelling of gums can occur during pregnancy?	21	79
6. Do you have bleeding gums ?	26	74
7. Have you visited a dentist during your course of your pregnancy?	16	84
8. Are you open to dental treatment	34	66

during your pregnancy?		
9. Do you brush twice daily ?	68	32
10. Did you know that you can undergo dental treatment during the course of your pregnancy ?	35	65
11. Do you have bad smell from your mouth ?	43	57
12. Do you have any tooth pain ?	14	86

Statistical Analysis

Collected data was analysed by frequency percentage and chi- square test. The analysis was carried out by SPSS software version 13.

Table 2: Mean age score in various age group.

AGE	YES	NO
20-25	32	68
25-30	68	32

Table 3: Course of the Subjects Pregnancy.

STAGE	YES	NO
1 st Trimester	68	32
2 nd Trimester	26	74
3 rd Trimester	6	94

Table 4: Means of knowledge score in various age groups

Knowledge	Yes	No
Dental Awareness	32	68
Pregnancy Related	84	16

RESULTS

General Characteristics Majority of the participants of this study were in the age group of 25-30years and around 33% were between 20 and 25years. The study population was heterogeneous. 68% of the participants were in 1st trimester and 26% in second trimester and 6% in their third trimester. Out of the total participants, 92% of them had never

visited a dentist and majority of the participant's oral hygiene practice was found to be poor .

DISCUSSION

The periodontal disease in pregnancy starts with a dental plaque and is accentuated by the action of hormones, mainly estrogen and progesterone, increased during pregnancy. These hormones trigger greater vulnerability of dental tissues to PD, mainly due to edema and increased vascularity of dental tissue [7]. Therefore, pregnant women with PD may develop the most severe form of the disease until the end of gestation [8]. There is a high prevalence of periodontal disease among pregnant women, and the rates of the severe form of PD are also of great concern.

Periodontitis is the most prevalent infection of the oral cavity, and there is ample evidence to suggest that periodontal disease is a risk factor for preterm deliveries. Estimates suggest that about 18.2% of all PTLBW cases may be attributable to periodontal disease.^[11] Existing studies suggest that periodontal disease in pregnant women is an added risk factor for adverse pregnancy outcomes such as Preterm delivery (labour before 37 weeks) ,Low birth weight (<2500 g) , Pre-eclampsia/eclampsia (pregnancy-induced hypertension, elevated levels of protein in urine) [12,13,3]

Periodontal infections are preventable and treatable; hence, periodontitis can be viewed as a modifiable risk factor in relation to preterm births. There is a need to expand preventive measures for pregnant women and to educate the female population on the adverse pregnancy outcomes caused due to periodontal disease.

In view of the effects of periodontal disease on pregnancy outcomes, American Academy of Periodontology has recommended that pregnant women or women planning pregnancy undergo periodontal examination and receive appropriate treatment if indicated.^[9]

Performing periodontal treatment during the second trimester of gestation would decrease the risk of development of adverse pregnancy outcomes, which could imply that periodontal disease can be considered as a risk factor for adverse pregnancy outcomes, especially preterm birth and/or low birth weight^[14] Treatment of

periodontal diseases during the second trimester resulted in improvement of periodontal health.

Efforts to educate the general female population on this association could contribute toward the reduction of the risk of PTLBW. Before projecting the importance of periodontal treatment during pregnancy, it is important to improve their knowledge through elaborate educative programs.^[8] It was observed that the participants awareness was low about the two-way relationship of periodontal diseases and pregnancy and its adverse effects during their course of their pregnancy and the results of this survey showed that the dental awareness among pregnant women was 32% while they had better awareness on pregnancy and systemic complications like diabetes which was 84%.

It was observed that the age group of 25-30yrs had higher knowledge scores as compared to the 20-25 age group and were receptive about dental treatment in their 2nd trimester. Adequate measures should be taken to increase the awareness about this association thereby attempting to prevent the occurrence of adverse pregnancy outcomes

CONCLUSION

Ideally, dental procedures should be scheduled during the second trimester of pregnancy when organogenesis is complete. Emergency dental care can be performed at any gestational age. The third trimester presents the additional problems of positional discomfort and the risk of vena caval compression. Developing universal guidelines for oral healthcare in pregnant women for all health professionals would be another important step. An adequate referral system to oral healthcare providers and biannual check-ups is recommended for both general patient as well as pregnant women for preventing adverse situations related to oral and specially periodontal diseases. Future surveys with more number of sample size is required to assess the association of periodontal diseases and pregnancy and other female related periodontal conditions.

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

REFERENCES

1. George A, Johnson M, Blinkhorn A, Ajwani S, Ellis S, Bhole S. Views of pregnant women in South Western Sydney towards dental care and an oral-health program initiated by midwives. *Health Promot J Austr.* 2013;24(3): 178-184. 10.1071/HE13040.
2. Chapple IL, Matthews JB. The role of reactive oxygen and antioxidant species in periodontal tissue destruction. *Periodontology* 2000. 2007;43: 160-232. 10.1111/j.1600-0757.2006.00178.x
3. Offenbacher S, Jared HL, O'Reilly PG, Wells SR, Salvi GE, Lawrence HP. Potential pathogenic mechanisms of periodontitis associated pregnancy complications. *Ann Periodontol.* 1998;3(1): 233-250. 10.1902/annals.1998.3.1.233.
4. Davenport ES, Williams CE, Sterne JA, Murad S, Sivapathasundram V, Curtis MA. Maternal periodontal disease and preterm low birth weight: Case-control study. *J Dent Res* 2002;81:313-8.
5. Crowther CA, Thomas N, Middleton P, Chua MC, Esposito M. Treating periodontal disease for preventing preterm birth in pregnant women. *Cochrane Database Syst Rev* 2005;2:CD005297.
6. Kim AJ, Lo AJ, Pullin DA, Thornton-Johnson DS, Karimbux NY. Scaling and root planing treatment for periodontitis to reduce preterm birth and low birth weight: A systematic review and meta-analysis of randomized controlled trials. *J Periodontol* 2012;83:1508-19.
7. Tettamanti L, Lauritano D, Nardone M, Gargari M, Silvestre-Rangil J, et al. Pregnancy and periodontal disease: does exist a two way relationship. *Oral Implantol (Rome).* 2017;10(2): 112-118. Review.
8. González-Jaranay M, Téllez L, Roa-López A, Gómez-Moreno G, Moreu G. Periodontal status during pregnancy and postpartum. *PLoS One.* 2017;12(5): 1-9.

9. Task Force on Periodontal Treatment of Pregnant Women, American Academy of Periodontology. American Academy of Periodontology statement regarding periodontal management of the pregnant patient. *J Periodontol* 2004;75:495.
10. Alwaeli HA, Al-Jundi SH. Periodontal disease awareness among pregnant women and its relationship with socio-demographic variables. *Int J Dent Hyg* 2005;3:74-82.
11. Agueda A, Ramón JM, Manau C, Guerrero A, Echeverría JJ. Periodontal Disease as a risk factor for adverse pregnancy outcomes: a prospective cohort study. *J Clin Periodontol*. 2008 Jan;35(1):16-22. [SEP]
12. . Marin C, Segura-Egea JJ, Martínez-Sahuquillo A, Bullón P. Correlation between infant birth weight and mother's periodontal status. *J Clin Periodontol*. 2005 Mar;32(3):299-304.
13. Madianos PN, Bobetsis YA, Offenbacher S. Adverse pregnancy outcomes (APOs) and periodontal disease: pathogenic mechanisms. *J Clin Periodontol* 2013; 40 (Suppl. 14): S170-S180.
14. Sant'Ana AC, Campos MR, Passanezi SC, Rezende ML, Greggi SL, Passanezi E. Periodontal treatment during pregnancy decreases the rate of adverse pregnancy outcome: a controlled clinical trial. *J Appl Oral Sci*. 2011;19(2):130-136. doi:10.1590/s1678-77572011000200009