Original Article

Assessment of Knowledge and Awareness Level about Periodontal Health in Pregnant Women in Beed District: A Questionnaire Study

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Abstract

Introduction: Periodontal disease, including gingivitis and periodontitis, is infections that if left untreated, can lead to tooth loss. The main cause of periodontal disease is bacterial plaque, the initiation and progression of gingivitis and periodontitis can be caused due to factors such as pregnancy. **Materials and Methods:** A cross-sectional study was carried out using self-administered structured questionnaire which was distributed to 200 pregnant women which consisted of 17 close ended questions related to knowledge and awareness pertaining to periodontal health during pregnancy. **Results:** The results showed that about 81% of the study population had poor knowledge, only 19% of them had good knowledge and about 60% of participants were not aware about the importance of dental check-up during pregnancy and 44% of them fear that dental treatment can affect the health of newborn. **Conclusion:** The study concluded that awareness and knowledge level of periodontal health among pregnant women was low.

Keyword: Pregnancy, Awareness, Periodontal health.

Introduction

Periodontal diseases are a group of infectious diseases resulting in inflammation of gingival and periodontal tissues and progressive loss of alveolar bone.[1] Besides systemic diseases, certain conditions may have an effect on gingival status and may aggravate pre-existing disease, especially in persons with poor oral hygiene. Pregnancy being one of these conditions is a time when the patient may experience the most profound physiologic and psychological changes in her life.[2]

Pregnancy describes a fetomaternal balance between the mothers immune system and fetus which is capable of rejection of fetus.[3] Many physiological conditions such as pregnancy, menopause, and puberty may bring some reversible changes in oral health. Immunological factors such as hereditary, genetic. Dietary factors such as alcohol and behavioral factors such as smoking are contributing factors for rejecting of pregnancy.[4]

Risk of perinatal increases unknowing because there is no symptoms are experience till disease gets into advanced stage. Premature birth, low birth weight neonates, pre-eclampsia, gingival ulcerations, pyogenic granuloma, erosion of tooth, etc. are the perinatal risks. Gingivitis occurs more often during 2nd trimester of pregnancy due to increase in level of estrogen which rises tissue blood flow, which initiates the reaction of gingival tissue with irritants in plaque.[4,5]

Pregnancy provides an ideal opportunity to improve women's health practices. Prenatal care entails regular and frequent medical visits, so that women are or can be motivated to improve their health for the benefit of the developing fetus. Since maternal oral flora and oral hygiene practices are predictors of the oral flora and oral health of infants and children, a pregnant woman's knowledge and actions concerning her oral health are critical to the oral health of her child or children and may be a key to childhood caries prevention.[2,6]

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Received: Sep 12, 2021; **Accepted:** Oct 07, 2021; **Published:** Oct 28, 2021

How to cite this article: Rajebhosale AV, Garude S, Vhatkar UD. Assessment of Knowledge and Awareness Level about Periodontal Health in Pregnant Women in Beed District: A Questionnaire Study. J Res Adv Dent 2022;13(1):63-67.

Access this article online

Website: www.jrad.co.in

DOI: https://doi.org/10.53064/jrad.2022.13.1.94

It has been shown that pregnant women have a higher incidence of gingival inflammation compared to non-pregnant women.[7] The incidence of gingival inflammation in pregnant women has been reported to range from 36% to 100%. Hormonal and vascular changes associated with pregnancy can exaggerate the response of the gingiva to bacterial plaque. Good oral hygiene practices, however, can minimize gingival disease during pregnancy.[8]

Studies showed that periodontal disease could be an independent risk factor for pre-term birth and low birth weight after adjusting for several known risk factors. In fact, treatment of periodontal disease has been shown to reduce pre-term birth and associations between periodontal disease and pregnancy, such as increased risk for development of preeclampsia during pregnancy.[9-11]

The purpose of the present study was to assess the awareness regarding periodontal health among pregnant females in Beed district of Maharashtra. The results obtained would serve as baseline information for planning an oral health education program aimed at improving the oral health of pregnant women receiving care in the hospital. It was beneficial to identify areas of deficiency in the women's knowledge and this would be helpful in formulating the content of the oral health messages.

Materials and Methods

With the help of independent questionnaires, data were collected based on the knowledge and behavioral aspects. The questionnaire by Kawamura is useful for the assessment of perception and behavior of oral health of the patients and which is also widely used all around, these questionnaires are from the Hiroshima University – Dental Behavior Inventory.[12]

This study is conducted in the department of obstetrics and gynecology, District hospital Beed, Maharashtra, with the sample size of 200 pregnant women, with the help of formulated questionnaires of 17 close ended questions, which is cross sectional study. Questionnaires were administered to all consenting pregnant women who attended the antenatal clinic during the study period. The questionnaire included the questions on the health awareness, awareness of relationship between oral health and pregnancy, oral health knowledge, oral hygiene, dental visits during pregnancy, advice about dental health requirements during pregnancy, history of bleeding gums and what, if any, actions were sought to treat perceived gingival problems and their willingness for treatment.

Each question answered "Yes" was given a score of 1 while for "No", score 0 was given. Thus, the maximum achievable score was 17 with a higher score indicating a high level of awareness. Individuals with scores of 11 and above were graded as having high awareness, those having scores from 6 to 10 were having average awareness while those with scores 5 or less were having low awareness. Awareness of periodontal health, according to age and educational qualifications of the pregnant females was also considered in the study.

Statistical analysis

The results obtained from the periodontal health awareness questionnaire were compiled and subjected to statistical analysis using SPSS version 19.0. Descriptive statistics were reported as well as cross-tabulations by age, parity, education and occupation. A probability value of <0.05 was taken as statistically significant.

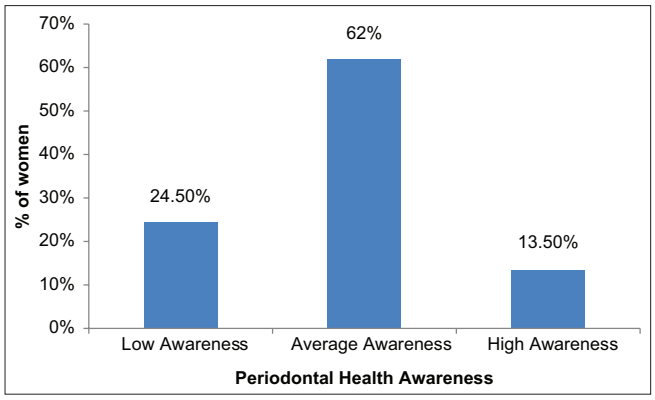
Results

The questionnaire was developed to tested on 200 pregnant women to allow for refinement of the questions to facilitate answering (Table 1)

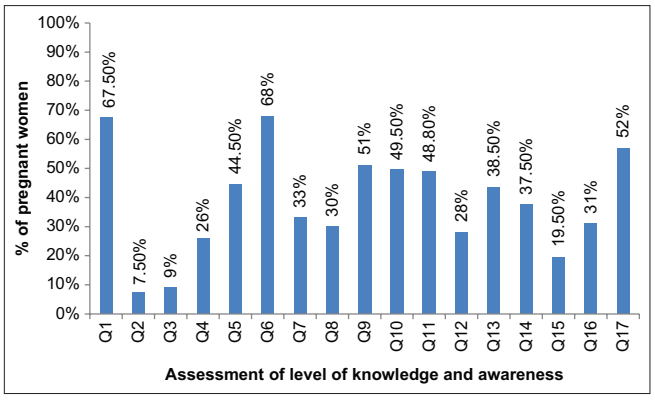
The population of this study was heterogeneous. Participant's age group of 21–25 years is more and 33% were in between the age of 26 and 30 years. A study population was divided into 18% with primary school education, 64% with secondary school education, and remaining 18% with post-secondary school education.

Table 1: Questionnaire used for the study

Question no	Question	Response
1	Do you brush your teeth daily ?	Yes/No
2	Do you brush your teeth after meal ?	Yes/No
3	Do you use hygiene aids, other than tooth brush for cleaning your teeth?	Yes/No
4	Do you use mouthwash regularly ?	Yes/No
5	Did you visit any dental clinic ?	Yes/No
6	Whether dental checkup during pregnancy is safe?	Yes/No
7	Minor dental treatment can be carried out during pregnancy ?	Yes/No
8	Swelling of gums can occur during pregnancy ?	Yes/No
9	Are you aware about dental checkup during pregnancy ?	Yes/No
10	Are you aware that dental treatment can affect the health of the newborn ?	Yes/No
11	Are you aware of the oral health practices during pregnancy is safe ?	Yes/No
12	Are you facing any difficulty in oral hygiene maintenance during pregnancy ?	Yes/No
13	did you notice any episodes of gum bleeding ?	Yes/No
14	Did you experience any foul smell originating from your mouth during pregnancy ?	Yes/No
15	Did you feel loosening of teeth in your mouth ?	Yes/No
16	Did you notice similar gum problems during your previous pregnancy ?	Yes/No
17	Did your gynecologist advice oral checkup during pregnancy ?	Yes/No



Graph 1: Distribution of sumple according to their health awareness



Graph 2: Assessment of knowledge and awareness level

The mean of answer of the questions correct by the subject were 7.84 ± 3.05 with a range of 2–14. The majority that is 62% subjects had average awareness, 24.5% with low awareness, and only13.5% with high awareness (Graph 1).

Knowledge and awareness of patient is not at all significant. ($P > 0.05$). 46.5% participants were never visited to the dentist and most of them were with very poor oral hygiene practice from the total study participants. During pregnancy, 38.5% participants were with complaint of bleeding gums and 37.5% participants were with complaint of foul smell from the mouth. Gynecologists' recommended 52% of subjects for the oral checkup during pregnancy. During pregnancy signs of dental disease were seen in about one third of study population (Table 2 and Graph 2).

From the total study population, 32% participants are not aware of dental checkup is safe during the pregnancy, and 33% participants are aware about the fact of minor dental procedures can be carried out during the pregnancy. 51.5% of the participants are not aware of the fact that there is safe period for dental treatment during the pregnancy. 49.5% participants assume and afraid of dental treatment, as it will affect the newborn baby. During the pregnancy, most of the participants do not known that how to prevent the gum disease and swelling of the gums (Table 2 and Graph 2).

Table 2: Assessment of knowledge and awareness level

Sr.No.	Questions	No of women	Percentage
1.	Do you brush your teeth daily?	135	67.5
2.	Do you brush your teeth after meal?	15	7.5
3.	Do you use oral hygiene aids other than tooth brush for cleaning your teeth?	18	9
4.	Do you use mouthwash regularly?	52	26
5.	Did you visit any dental clinic?	89	44.5
6.	Whether dental checkup during pregnancy is safe?	99	68
7.	Minor dental treatment can be carried out during pregnancy?	66	33
8.	Swelling of gums can occur during pregnancy?	60	30
9.	Are you aware about dental checkup during pregnancy?	102	51
10.	Are you aware that dental treatment can affect the health of the newborn?	99	49.5
11.	Are you aware of the oral health practices during pregnancy is safe?	97	48.8
12.	Are you facing any difficulty in oral hygiene maintenance during pregnancy?	56	28
13.	Did you notice any episodes of gum bleeding?	77	38.5
14.	Did you experience any foul smell originating from your mouth during pregnancy?	75	37.5
15.	Did you feel loosening of teeth in your mouth?	39	19.5
16.	Did you notice similar gum problems during your previous pregnancy?	62	31
17.	Did your gynecologist advice oral checkup during pregnancy?	104	52

Discussion

A progression of periodontal and gingival diseases is only noticed when it goes in advanced stage. Hence, the most important thing for prevention and maintain periodontal health is knowledge and awareness about periodontal disease. There is no gainsaying the fact that good oral health during pregnancy is important, especially in view of the recent suggestions that poor oral health may result in unfavorable pregnancy outcomes. This is important in India because of the high maternal mortality rates. The Periodontal disease during pregnancy is preventable by the institution of simple measures such as regular tooth-brushing and flossing. However, such positive behavior would be influenced by the individual's oral health knowledge and attitudes which in turn is influenced by the awareness of an individual. Thus, assessment of knowledge and awareness level about periodontal health in pregnant women was done in this study.

Premature birth and the low birth weight fetus can be major risk factors which are caused due to inflammatory periodontal disease during pregnancy.[3] According to the

American Dental Association dental treatment should be escaped during the first and third trimester of pregnancy, if it can be feasible.[13]

The majority of the study population (62%) showed insufficient awareness in this study. The present study was similar results to study conducted by Alwaeli *et al*. (2005)[14] and Singh *et al.* (2015)[2] who concluded that pregnant women had insufficient knowledge and awareness about periodontal health. Some preventive programs about periodontal health for prevention of periodontal disease should be provided during and before pregnancy.

Gingivitis does not caused due to pregnancy, but can provoke previous disease. There are many changes seen in gingival blood supply. Localized gingival enlargement, dark reddish swollen and smooth gingiva, bleeding on probing are the features of pregnancy gingivitis. Gingival inflammatory changes are reversible, they may be decreases after eliminating local irritants.[14] Aggravation of periodontal/gingival diseases such as bleeding and swelling can be caused due to hormonal changes during pregnancy.[14,15] In this study, 38.5% of women population felt gum bleeding and about 19.5% of women population experienced teeth mobility.

Knowledge about the interrelation between periodontal health and pregnancy is also important for general physician and gynecologist. Habashneh *et al*. (2008)[16] conducted a study about assessment of knowledge about oral health in general healthcare practitioners. Tarannum *et al*. (2013)[17] concluded that general physicians and gynecologists were less aware about interrelation between oral health and pregnancy. This study shows 52% of the women were not recommended by gynecologists about oral health checkup during pregnancy. Furthermore, another study by Rajesh *et al*. (2018)[18] founds that gynecologist were less supportive and less aware about periodontal health during.

In gynecologists and general physicians, there are some minor misunderstandings regarding provision of dental treatment during pregnancy and this misunderstandings act as obstacles for dentists to provide dental treatment to pregnant women. Pregnant women need accurate information about their teeth and oral health. Simple educational preventive programs on oral self-care and disease prevention before and during pregnancy should be provided to improve oral health.

For the purpose of prevention of periodontal disease during pregnancy, there is need of multiple workshops on these subjects including of general physicians and gynecologists should be organized. Results of the study may enhance oral health education in pregnant women.

Limitations of study

1. Its reliance on self-reported data, which is often subject to biases inherent to questions being asked such as recall bias.
2. Nonetheless, the results would serve as a veritable tool for designing and specifying appropriate knowledge about periodontal health messages for pregnant women during or before pregnancy.

Conclusion

Due to lack of knowledge and awareness about interrelation between periodontal health and pregnancy . There are many obstacles in pregnancy , inspite of the improvements in diagnostic and therapeutic systems used to identify high risk complications during and before pregnancy.

A majority of the pregnant women has good knowledge and information about general health; however, their knowledge and awareness regarding periodontal disease, and its effect on the pregnancy and birth outcome is limited. Most pregnant women need more information about oral health, and prevention of gingival and periodontal diseases.

This study shows very low awareness and knowledge level about periodontal health among pregnant women. Further, studies are needed to determine the role of dental hygienists in designing and promoting information regarding periodontal health awareness and practices among pregnant women in maternity care centers.

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