

# Assessment of Knowledge, Attitude, Practice, Awareness Level of Periodontal Health and Adverse Outcomes among Pregnant Women – A Questionnaire Study

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## Abstract

### ➤ Aim

Assess the knowledge and awareness of periodontal disease and its effect on pregnancy among pregnant women.

### ➤ Materials and Method

In this cross-sectional survey, self-administered, specially formulated objective type questionnaire were distributed to 100 pregnant women. The questionnaire consisted of 23 questions divided into 4 parts.

### ➤ Result

The collected data were analyzed by frequency percentage. Only 29% of participants were aware of importance of dental checkup during pregnancy and 18% were aware of importance of oral hygiene practices during pregnancy. 15% of participants never visited dentist and found to have poor oral hygiene.

### ➤ Conclusion

The awareness and knowledge level of periodontal health among pregnant women was found to be very low.

**Keywords:-** Pregnancy, Periodontal health, Awareness.

## I. INTRODUCTION

Periodontal disease is a set of inflammatory diseases including gingivitis and periodontitis. Periodontal diseases are infections if it is left untreated, ultimately leading to tooth loss. The main causative factor of periodontal disease is bacterial plaque, but factors such as pregnancy can also affect the initiation and progression of gingivitis and periodontitis [1]. Pregnancy is a stage in women's life filled with immense joy and excitement coupled with anxiety. The fluctuating

level of circulating female sex hormones causes various physiological changes in her body [2]. Oral changes are inexorable during pregnancy. Contributing factors associated with pregnancy are believed to be Immunological, dietary and behavioral factors. Pregnant women are particularly susceptible to gingival and periodontal diseases [3,4,5].

The body experiences hormonal changes during pregnancy that are unique with abrupt increase in estrogen and progesterone, which can affect many of the tissues in the body, including the gingiva. Gingiva at times react strongly to the hormonal fluctuation and can become more susceptible to bacterial challenge, which may make it more vulnerable for periodontal disease. Gingivitis may occur more frequently during the second trimester of pregnancy because of a rise in the estrogen level that increases the blood flow to the tissue, leading to an exaggerative reaction of gingival tissue to the irritants in plaque [6]. In addition, symptoms are not manifested until advanced disease stages and therefore unwittingly increase perinatal risks like premature birth, low birth weight babies, pre-eclampsia, pregnancy granuloma, ulcerations of the gingival tissue and tooth erosion. An increase in these risks are seen in women who smoke, experience nutritional deficiencies or have less frequent visits to the dentist [7,8,9].

An important factor in determining the chance of survival, growth and development of an infant is birth weight. The prevalence of preterm low birth weight (PTLBW) infants has actually increased, despite of the advances in perinatal medicine, which is a significant public health issue in both developed and developing countries [10]. Preterm birth is defined as labor or birth before 37 weeks of gestation, and low birth weight is defined as birth weight <2.5 kg [11]. Numerous researches done linking periodontitis to the risk for adverse birth outcomes gave way to an increased curiosity in expanding the knowledge in the topic

of oral health during pregnancy. Increased attention has been focused on maternal periodontitis and preterm low birth weight [12,13,14].

The period in which dental treatment is given is another field of considerable interest to pregnant women. Optimal oral health achievement in pregnant women has its own multiple benefits. Failure to understand the importance of maintaining oral care during pregnancy and the barriers experienced by them is an important issue to be taken care of. Pregnant women if motivated through educational programmes will have a lasting impact in improvement of their oral health. The available data indicate, moderate to poor knowledge related to oral health and adverse pregnancy outcomes, poor dental attendance and oral health related practices [15,16,17,18,19].

Hence, an investigation was carried out to:

- Assess the knowledge of pregnant women about periodontal health and its effects during pregnancy.
- Assess the awareness about periodontal health and pregnancy outcomes.

## II. MATERIALS AND METHODS

There is no universally accepted or recommended index/ inventory for measuring oral health knowledge and awareness. The data was collected on the basis of knowledge and behavioral aspects which was derived from a series of independent questionnaires.

This is a cross sectional study with a sample consisting of 100 pregnant women reporting to the Department of Obstetrics and Gynecology, AJ Institute of Medical Sciences, Mangalore, using a specially formulated objective type of questionnaire consisting of close ended questions.

Those who were having systemic illness and who were uncooperative or not willing to give consent were excluded from the study. Participation in the survey was voluntary and anonymity was maintained about the personal record. Pregnant women who were not willing to participate in the study & who did not respond/gave back the questionnaire during the stipulated time period were excluded from the study.

### ➤ Questionnaire Design

The questionnaire was prepared by the principal investigator in consultation with other investigators.

A study specific questionnaire consisted of 23 questions which were divided into four parts;

- Personal data, stage of pregnancy, number of pregnancy
- General questions which include daily oral health practices and the changes seen in gingiva during pregnancy.
- Knowledge about changes in oral health during pregnancy and their effect on pregnancy outcomes.
- Awareness about oral health and pregnancy outcomes.

The questionnaires were distributed to the subjects who came to Department of Obstetrics and Gynecology, AJ Institute of Medical Sciences, Mangalore. Majority of the participants completed the questionnaire study in 5–10 min. The filled responses were then transferred to the Microsoft Excel sheet for appropriate statistical analysis.

## III. STATISTICAL ANALYSIS

Collected data was analyzed by frequency percentage. The analysis was carried out by SPSS software version 13.

## IV. RESULTS

### ➤ General Characteristics

Majority of the participants of this study were within the age group of 25-30 years (39%) and 36% were between 20-25 years, 19% were between 30-35 years, 6% were between 35-40 years. The population in the study was heterogeneous. Out of the total study population, 16% had primary school education, 27% had secondary school education and 36% had pre-university education, 17% were graduates and 4% were postgraduates.

### ➤ Dental Awareness and Knowledge

Only 29% of the participants were aware of the importance of dental checkup during pregnancy and 18% knew the importance of oral hygiene practices to be considered during pregnancy. 53% of the patients were aware that minor dental treatments can be done and only 8% were aware of the swelling of gums during pregnancy. 53% of the participants did not know that brushing and flossing can prevent gum disease. 85% visited dentist regularly and 80% knew smoking has bad effect on pregnancy. 76% of them do not think that gum disease has any relation with premature labor. 53% of the participants were aware that dental treatment can be done during second trimester of pregnancy, but 28% of the participants had a fear that dental treatment may affect the health of the newborn.

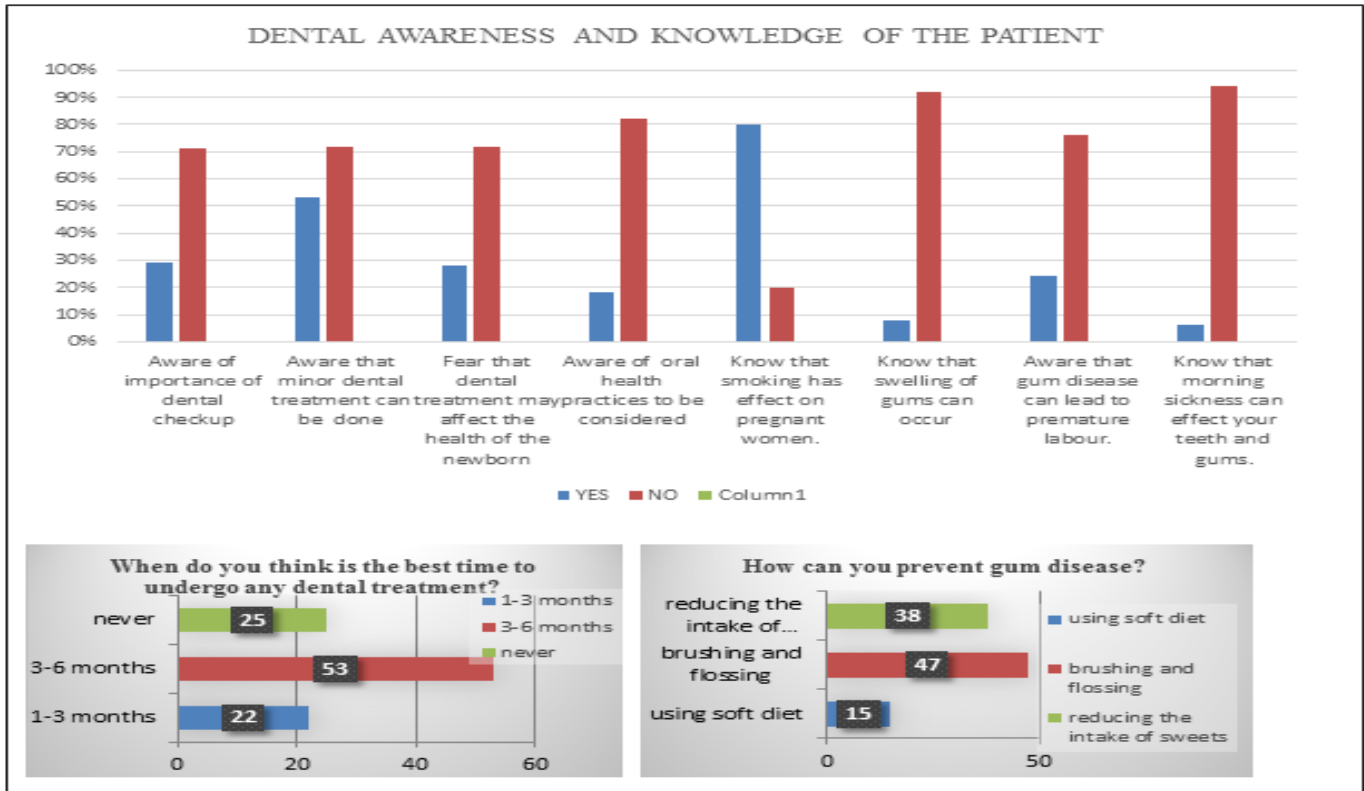


Fig 1:- Dental Awareness and Knowledge of the Patient

➤ *Perceived Dental Experiences and Practices*

Out of the total participants, 15% of them had never visited a dentist and majority of the participant’s oral hygiene practice was found to be poor. About 19% of participants had experienced gum bleeding and 21% of them had noticed foul smell originating from their mouth during pregnancy. Only 8% of the participants had experienced loosening of teeth and 14% of them had dryness of mouth during pregnancy. Difficulty in oral hygiene maintenance during pregnancy were experienced by only 4% of participants. During the period of pregnancy nearly one third of study population had perceived signs of dental disease but only in 8% of subjects, gynaecologists recommended oral check-up during pregnancy.

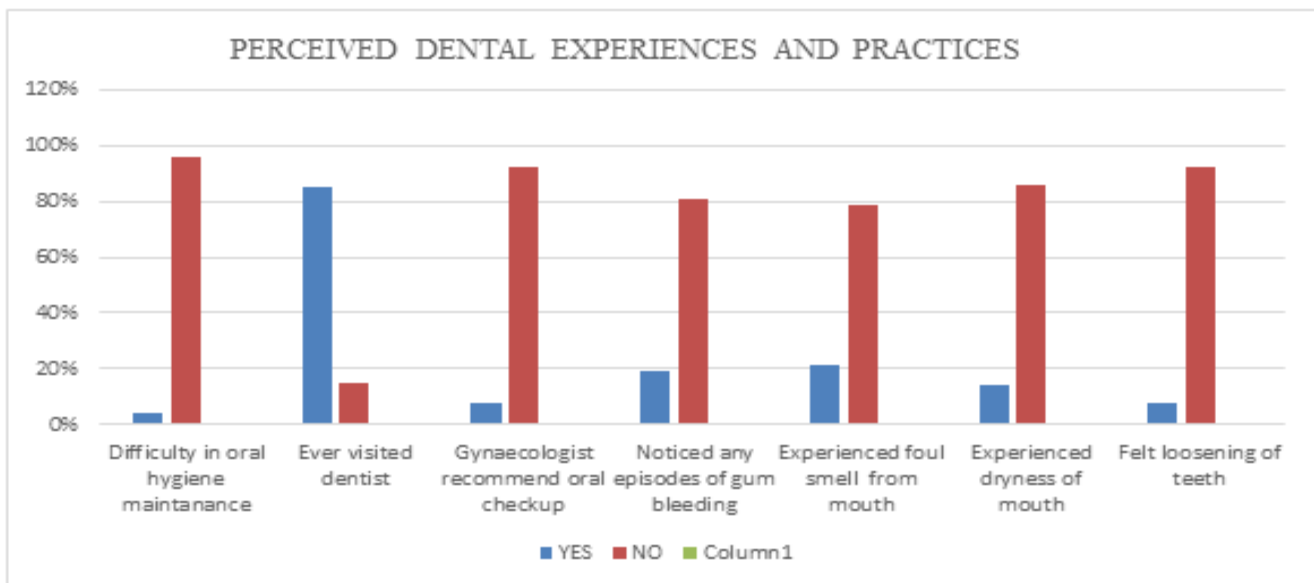


Fig 2:- Perceived Dental Experiences and Practices

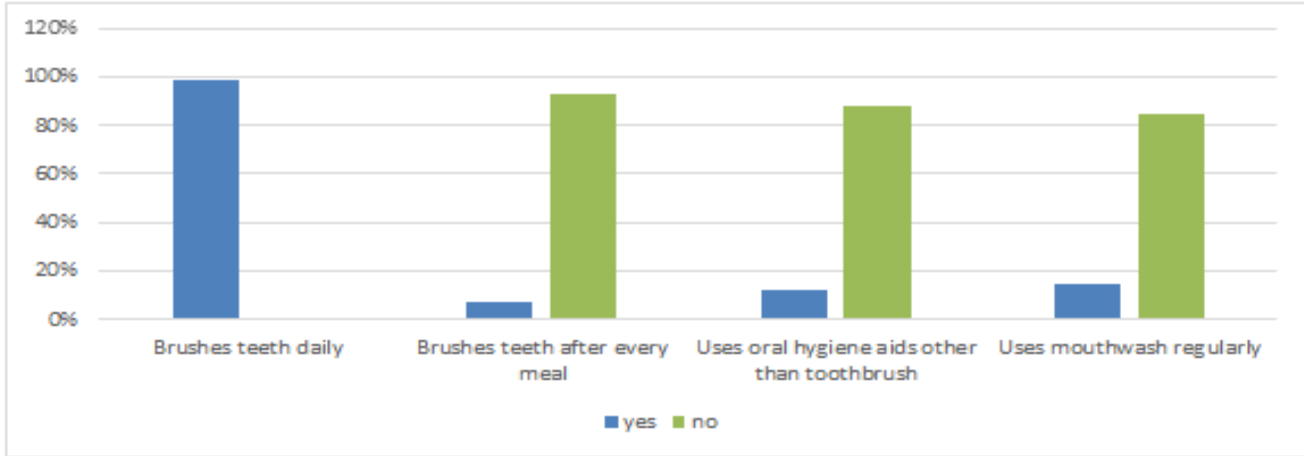


Fig 3:- Oral Hygiene Practices by the Patient

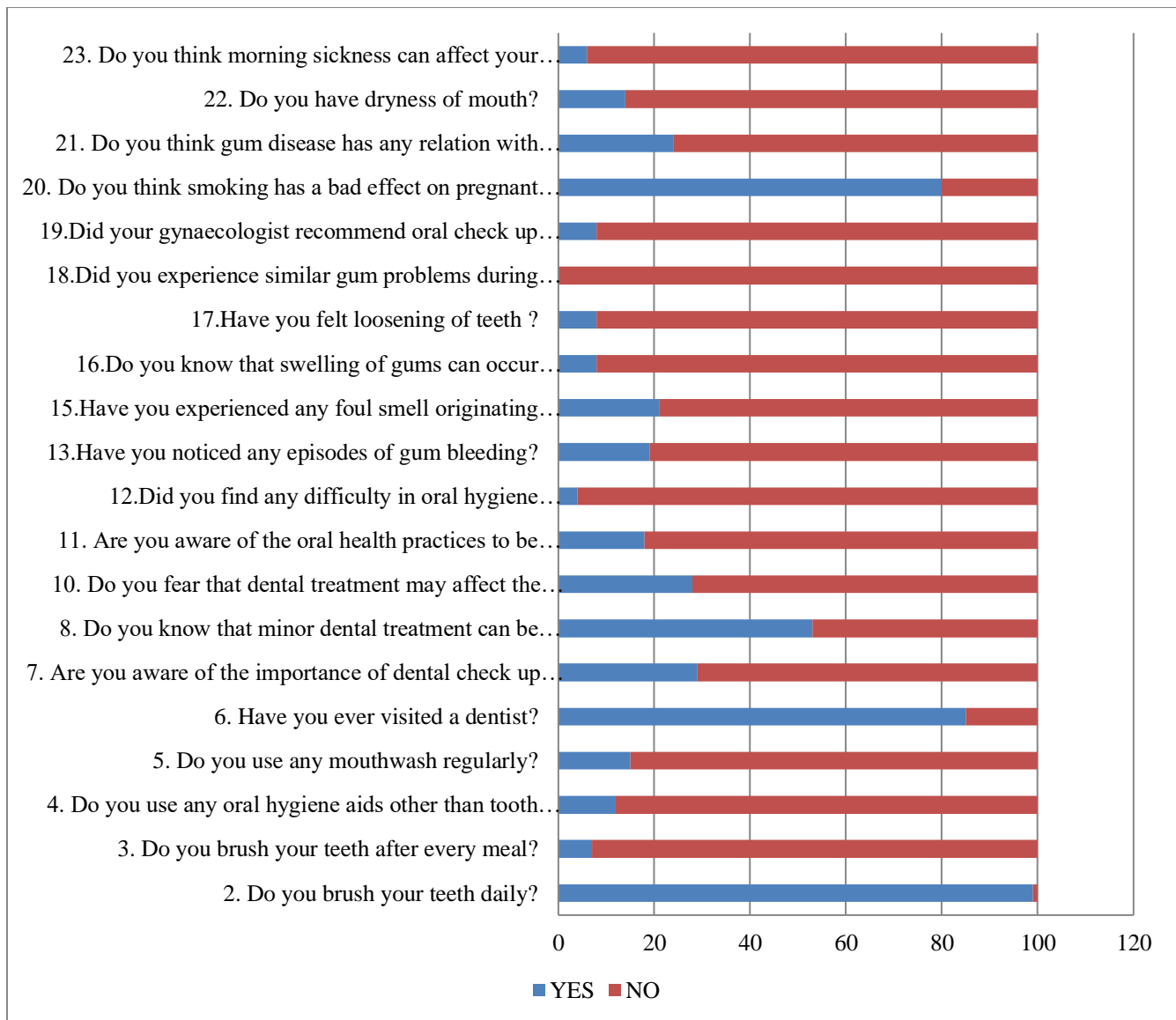


Fig 4:- Proportion of Respondents to Knowledge, Awareness and Practices

## V. DISCUSSION

The progression of periodontal disease is usually unnoticed, and the serious ill effect of the disease is recognized by most people only when it reaches an advanced stage. Hence, acquiring the best knowledge and awareness on periodontal diseases is important to control and maintain periodontal health. This study was undertaken to assess the knowledge and awareness level among the pregnant women about periodontal health. Pregnancy can be adversely affected by inflammatory periodontal disease leading to premature labor or a low-birth weight infant [20].

The American Dental Association (ADA) suggests that during the first and third trimester of pregnancy, elective dental care should be avoided, if possible [21]. It is advisable for pregnant woman to seek dental care during second trimester of pregnancy, as in the first trimester of pregnancy most of the tissues are in the formative period and in the third trimester there is high risk of postural hypotension and positional discomfort. According to California Dental Association Foundation, the use of dental x-rays and local anesthesia for prevention, diagnosis, and treatment of oral diseases, are highly beneficial with no additional fetal or maternal risk when compared to the risk of not providing care [22].

In the present study, majority of participants were unaware of gingivitis and safe period for dental treatment. The results of the present study were similar to study conducted by HA Alwaeli et al (2005) [23] and Shilpi et al (2015) [24] who concluded that knowledge and awareness for pregnant women about their teeth and gingival condition is generally poor. Gingivitis during pregnancy need significant attention even though it is common and reversible. Before and during pregnancy simple educational preventive programmes on oral self-care and disease prevention if provided will tremendously improve the oral health. A study conducted by Boggess et al (2011) [25] concluded that oral health knowledge can vary according to maternal race or ethnicity in pregnant women. Their beliefs varied according to their education levels. Oral health knowledge among pregnant women and that of their children can be improved by oral health education as a part of prenatal care. In comparison with results found by Taani et al [26] regarding the knowledge of periodontal health among the participants, similar results were found in the non-pregnant and pregnant women.

One of the most significant unresolved problems of public health and perinatology is preterm delivery and it is one of the strong predictors of infant mortality and morbidity. The exact pathophysiology of preterm delivery is unknown. Studies suggests that the reason for majority of preterm deliveries is subclinical infections and chronic inflammation [11]. Periodontitis is the most prevalent infection of the oral cavity, and there are many evidences suggesting periodontal

disease as a risk factor for preterm deliveries. Estimates suggest that about 18.2% of all Preterm Low Birth Weight cases may be attributable to periodontal disease [11]. The study conducted by Shenoy et al [27] also agreed that periodontal disease in expectant mothers may lead to preterm low birth weight babies.

The findings in the present study clearly proves that the knowledge of pregnant women about association of oral health and adverse pregnancy outcome was poor. The poor knowledge is independent of socio-economic status and educational level of the patients. Similar results were reported in the study by Habashneh et al [28] where knowledge was poor among homogeneous population of relatively high socioeconomic standing.

Gingivitis is not caused by pregnancy, but it can aggravate pre-existing disease. The most marked changes are seen in gingival vasculature. Dark red, swollen, smooth gingiva which bleeds easily is the characteristic feature of pregnancy gingivitis. Localized gingival enlargements may be seen in women with pregnancy gingivitis. The gingival changes usually resolve if local irritants are eliminated within few months after delivery. The inflammatory changes are usually reversible and restricted to the gingiva [29]. During pregnancy hormonal changes can cause exacerbation of periodontal or gingival clinical characteristics especially swelling and bleeding [30]. In the present study 19% of women experienced gum bleeding and only 8% of them felt loosening of teeth.

The physician's knowledge about the association between pregnancy and oral health is also important. A study was done by Habashneh et al [31] to assess the knowledge of healthcare providers and found out that general practitioners were less informed about oral health practices in pregnant women. Similarly, another study done by Fouzia et al [32] found that Gynaecologists and General Medical Practitioners were less aware and unsupportive of the association between pregnancy and periodontal health compared with the dental health care providers. In our study 92% of the subjects were not recommended by gynaecologists about oral health check-up during pregnancy as they were not aware about the gingival changes during pregnancy.

The gynaecologists have minor misconceptions regarding the provision of dental treatments during pregnancy and this acts as a barrier for dentists in providing appropriate treatment to the pregnant patients. In order to stop compromising on the quality of dental care such misconceptions has to be clarified. Multiple workshops on these subjects involving dental health care providers, gynaecologists and public health care providers should be organized at government/private institutional level. The limitation of this study was its reliance on self-reported data and the convenience sampling technique which can lead to



biases. The results of the study can improve oral health education in pregnant women receiving antenatal care.

## VII. CONCLUSION

The rates of many complications of pregnancy are not decreasing, including the preterm birth despite several decades of major improvements in diagnostic and therapeutic systems used in antenatal care. Lack of awareness about the association between periodontal health and pregnancy outcomes can be one of the main reason. In this study, the awareness and knowledge level of periodontal health among pregnant women was found to be very low. Studies have to be performed to investigate any possible benefits from periodontal treatment before conception.

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