



(RESEARCH ARTICLE)



Determining the role of Gynaecologists in peri-operative oral functional management (POFM) of Pre-eclampsia: A cross-sectional survey

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Abstract

Background and objectives: Pre-eclampsia affects 5–15% of pregnancies in India, significantly contributing to maternal morbidity and mortality. Research by Swetha Tanneeru et al. identified periodontal microbial components in subgingival plaque and placental tissue, linking periodontitis as a key risk factor for pre-eclampsia. Managing patients with Peri-operative Oral Functional Management (POFM) reduces microbial loads, emphasizing oral health's role in mitigating pre-eclampsia risks. Identifying periodontal disease and considering POFM reduces microbial load. With this hypothesis we aimed to assess knowledge of periodontal disease as a risk factor among gynaecologists in pre-eclampsia.

Methods: A Google-based questionnaire survey was distributed to gynaecologists in Kalaburagi, targeting professionals irrespective of experience or institution type. The 17-question survey assessed knowledge of periodontal disease's role in pre-eclampsia, attitudes toward periodontal care and willingness to collaborate with dental specialists.

Results: SPSS analysis revealed 45% of gynaecologists were aware of pre-eclampsia prevalence, with 52.1% recognizing its association with periodontal infections. However, only 35.6% were informed about POFM's role. Encouragingly, 98.6% supported interdisciplinary collaboration with periodontists.

Conclusion: The study highlights gaps in knowledge and practices regarding periodontal care in pre-eclampsia management. Periodontal health is vital in preventing complications like preterm low birth weight and developmental deformities. Gynaecologists acknowledged the importance of integrating periodontal care and supported its prioritization through referrals to periodontists. The findings underscore the need for multicentric studies and educational initiatives to promote POFM and interdisciplinary approaches, potentially reducing maternal morbidity and mortality associated with pre-eclampsia.

Keywords: Peri-operative Oral Functional Management; Periodontitis and Pre-Eclampsia; Periodontal Therapy; Gynaecologist and Periodontist; Pre-Term Low Birth Weight

1. Introduction

Pre-eclampsia is a significant complication of pregnancy, affecting approximately 5-15% of expectant mothers in India. It is recognized as one of the leading causes of maternal morbidity and mortality. The condition is characterized by high blood pressure and damage to organs, particularly the kidneys, and is often associated with complications such as fetal growth restriction, preterm delivery and maternal organ failure [1]. Recent studies have pointed to potential links between periodontal diseases and pre-eclampsia [2].

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Research by Swetha Tanneeru et al. explored the relationship between chronic periodontitis and pre-eclampsia, revealing that chronic periodontal infection with plaque as microbial etiology has shown placental inflammation may be a contributing risk factor for the development of pre-eclampsia [1,5]. Furthermore, the study highlighted those interventions aimed at improving oral health, specifically through Peri-operative Oral Functional Management (POFM), could reduce microbial load in the oral cavity and, in turn, lead to a reduction in placental inflammation. With this understanding, a hypothesis was formed to explore the role of the gynaecologist in an interdisciplinary approach involving both gynaecology and periodontics, focusing on improving the physical and psychological well-being of pre-eclamptic patients [3].

Aim & objectives

The primary aim of this study is to evaluate gynaecologists understanding of the association between periodontal diseases and pre-eclampsia and to examine the potential benefits of an interdisciplinary approach with POFM involving gynaecologists and periodontists. The main objectives of our study are:

- To assess the awareness and understanding of gynaecologists regarding the association between periodontal diseases and pre-eclampsia
- To explore gynaecologist's perspectives on the importance of an interdisciplinary approach between gynaecologists and periodontists
- To determine the level of acceptance among gynaecologists for the integration of POFM in the peri-operative care of pre-eclamptic patients.

2. Materials and Methodology

This cross-sectional survey aimed to evaluate the understanding and practices of gynaecologists regarding the association between pre-eclampsia and periodontal diseases, as well as their approach to interdisciplinary management through POFM.

2.1. Study Design

A Google-based questionnaire survey was designed and distributed among practicing gynaecologists in India.

2.2. Participants

The study targeted gynaecologists actively engaged in clinical practice, with no restriction on years of experience, geographic location, or type of healthcare institution. Participants were selected using convenience sampling.

2.3. Questionnaire

The questionnaire comprised 17 multiple-choice and open-ended questions. These questions were categorized into the following domains:

- **Demographic Information:** Age, gender, years of experience, and practice setting.
- **Knowledge Assessment:** Awareness of periodontal disease as a potential risk factor for pre-eclampsia⁴.
- **Attitudes Towards POFM:** Perception of the importance of periodontal management in pre-eclamptic patients.
- **Interdisciplinary Collaboration:** Experience and willingness to collaborate with dental specialists, particularly periodontists, in patient care.

PROFORMA:
1)Name of the gynaecologist
2)Age of the gynaecologist
3)Years of experience
4)Do you have any knowledge about the prevalence of pre-eclamptic cases a) Yes b) No

5)How much is the prevalence of pre-eclampsia according to you in Kalaburagi a) <5%-15% b) 5%-15% c) >5%-15%
6)How many pre-eclampsia cases have you come across on a monthly basis in your hospital or clinic a) <20 cases b) 20-40 cases c) >40 cases
7)What do you think is the major etiologic factor for pre-eclampsia a) Genetic factor b) Abnormal placental development c) Bacterial vaginosis d) Periodontal disease
8)Which etiology of pre-eclampsia, commonly leads to premature rupture and pre-term low birth weight a) Genetic factor b) Abnormal placental development c) Bacterial vaginosis d) Periodontal disease
9)Are you aware of whether periodontal infections like gum infections or bleeding gums also lead to pre-eclampsia a) Yes b) No
10)If you are aware of periodontal infections, how did you get your information a) Journal b) Books c) Conversations with Dentists d) Articles
11)Do you get patients with complaints of gum infections or any oral-related diseases a) Yes b) No
12)Do you send these patients to general dentists or periodontists for a second opinion a) Yes b) No
13)Do you have any knowledge about periodontal medicine a) Yes b) No
14)Is there any updated information regarding the correlation between periodontitis/gum infection and pre-eclampsia in the society of obstetrics and gynaecologists a) Yes b) No
15)Do you prepare patients for Perioperative Oral Function Management (POFM) before their estimated due date a) Yes b) No
16)Do you think educating or motivating pre-eclamptic patients for POFM will benefit the patient a) Yes

b) No
17) Do you agree whether an interdisciplinary approach of periodontists and gynaecologists would benefit the patients
a) Yes
b) No

Figure 1 Questionnaire proforma

2.4. Data Collection and Analysis

The questionnaire was circulated via email and professional networks. Responses were collected anonymously over a period of one month. Data were analysed descriptively to determine the prevalence of awareness, attitudes, and practices among gynaecologists. Results were presented as percentages, with qualitative responses summarized to identify recurring themes.

This methodology was designed to provide insights into the current state of interdisciplinary collaboration and to guide the integration of oral healthcare into maternal health management.

3. Results

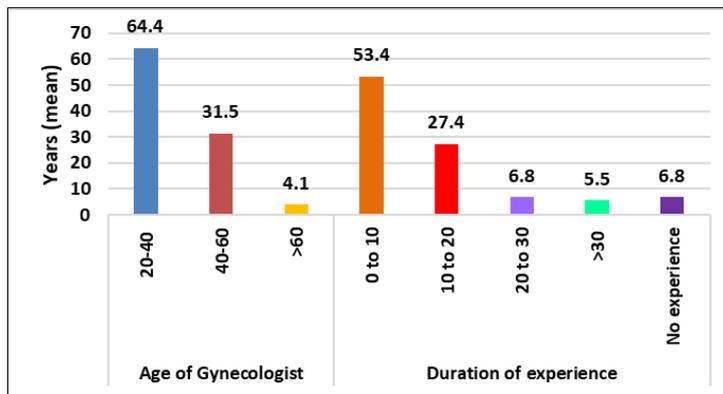


Figure 2 Demographic information

The chart shows that 64.4% of gynaecologists are aged 20–40 years, 31.5% are aged 40–60 years, and 4.1% are over 60 years old. Regarding duration of experience, 53.4% have 0–10 years of experience, 27.4% have 10–20 years, 6.8% have 20–30 years, 5.5% have over 30 years, and 6.8% reported having no experience.

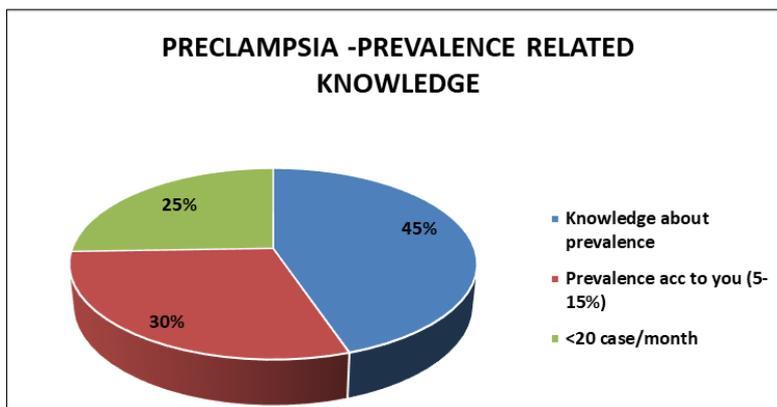


Figure 3 Knowledge assessment

The pie chart illustrates knowledge regarding the prevalence of preeclampsia. About 45% of respondents reported having knowledge about prevalence, 30% stated the prevalence according to them is 5–15%, and 25% reported encountering fewer than 20 cases per month.

Table 1 Knowledge regarding prevalence of pre-eclampsia

Category	Percentage (%)
Knowledge about prevalence	45
Prevalence according to respondents (5–15%)	30
<20 cases/month	25

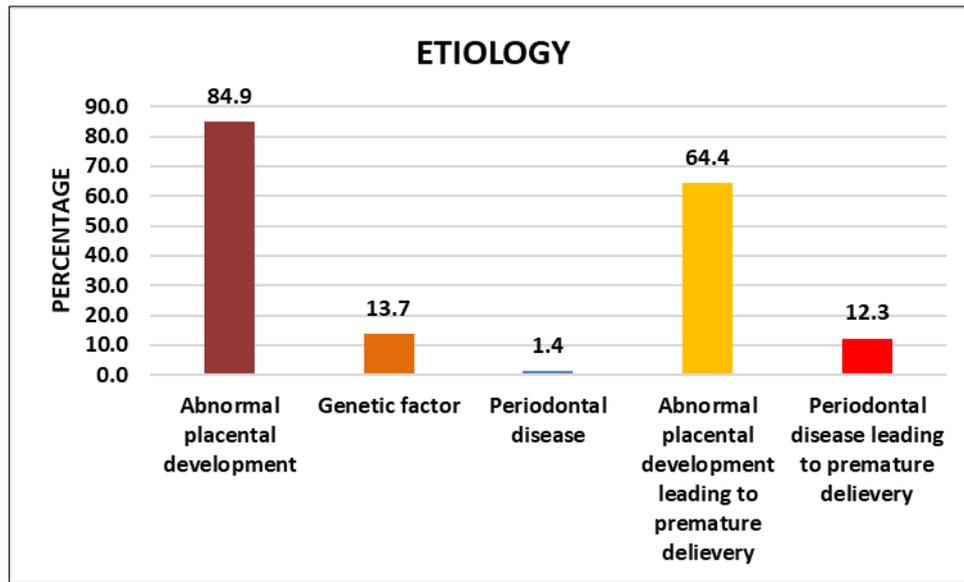


Figure 4 Graphical representation of etiological factors

The chart outlines the etiological factors associated with certain conditions. Abnormal placental development was reported as a factor in 84.9% of cases, while 64.4% linked it to abnormal placental development leading to premature delivery. Genetic factors accounted for 13.7%, periodontal disease for 1.4%, and periodontal disease leading to premature delivery for 12.3%.

Table 2 Etiological factors

Etiological Factor	Percentage (%)
Abnormal placental development	84.9
Genetic factor	13.7
Periodontal disease	1.4
Abnormal placental development leading to premature delivery	64.4
Periodontal disease leading to premature delivery	12.3

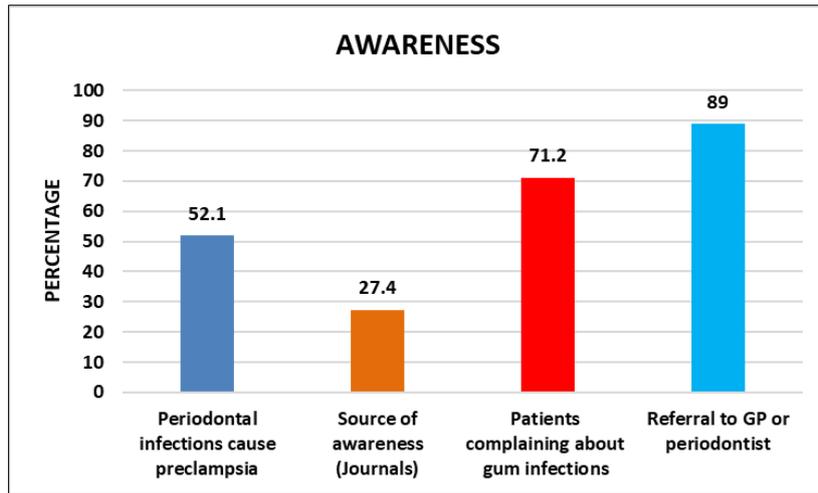


Figure 5 Awareness data

The awareness data reveals that 52.1% of individuals recognize that periodontal infections can lead to preeclampsia. Journals were identified as a source of awareness by 27.4% of the respondents. Additionally, 71.2% of patients reported complaints about gum infections, highlighting the prevalence of this issue. Notably, 89% of individuals were referred to a general practitioner (GP) or periodontist for further evaluation or treatment.

Table 3 Awareness aspect

Awareness Aspect	Percentage (%)
Periodontal infections cause preeclampsia	52.1
Source of awareness (Journals)	27.4
Patients complaining about gum infections	71.2
Referral to GP or periodontist	89

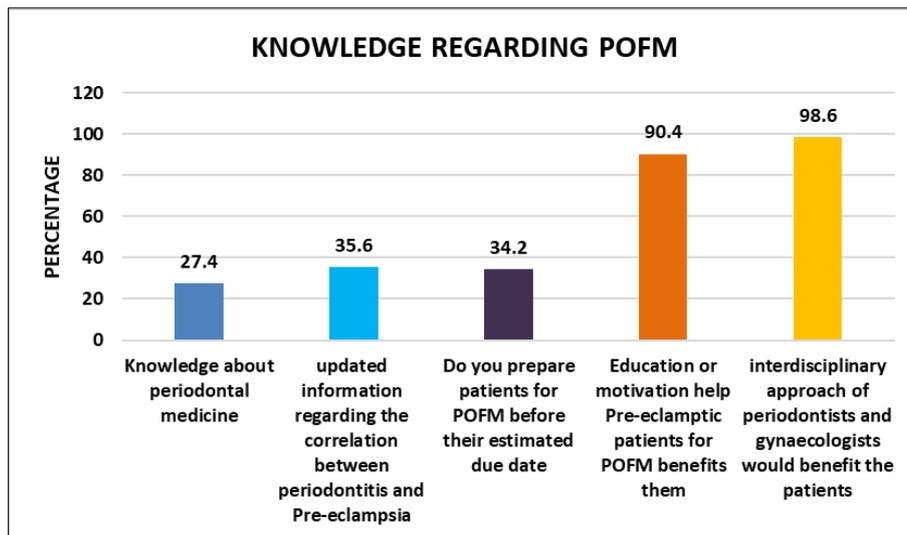


Figure 6 Knowledge regarding POFM

The data on knowledge regarding Perioperative Oral Functional Management (POFM) indicates that 27.4% of individuals have knowledge about periodontal medicine, while 35.6% have updated information about the correlation between periodontitis and preeclampsia. Additionally, 34.2% of respondents prepare patients for POFM before their estimated due date. A significant 90.4% believe that education or motivation helps preeclamptic patients understand

the benefits of POFM. Furthermore, 98.6% agree that an interdisciplinary approach involving periodontists and gynaecologists would benefit patients.

Table 4 Knowledge aspect

Knowledge Aspect	Percentage (%)
Knowledge about periodontal medicine	27.4
Updated information about the correlation between periodontitis and preeclampsia	35.6
Preparing patients for POFM before their estimated due date	34.2
Education or motivation helps preeclamptic patients understand POFM benefits	90.4
Interdisciplinary approach of periodontists and gynaecologists' benefits patients	98.6

4. Discussion

Pre-eclampsia remains a major challenge in maternal care, and while the pathophysiology of the condition is multifactorial, the potential influence of oral health on its development offers a novel avenue for intervention [5]. The link between periodontal disease and pre-eclampsia is increasingly recognized, with research suggesting that periodontal infections may contribute to systemic inflammation, which can trigger or exacerbate the hypertensive crisis seen in pre-eclampsia [6].

This study found that gynaecologists are generally aware of the association between periodontal disease and pre-eclampsia and support the idea of a multidisciplinary approach [7]. However, while most participants were in favour of the interdisciplinary approach, there was a varying degree of knowledge about the practical aspects of implementing POFM, especially in terms of preoperative management.

The potential benefits of POFM for pre-eclamptic patients cannot be understated. Research has demonstrated that effective oral hygiene interventions, such as scaling and root planning, can reduce bacterial load in the oral cavity and improve systemic health outcomes [8]. For pre-eclamptic patients, reducing the bacterial load in the mouth may also reduce the inflammatory response in the placenta, potentially mitigating some of the risks associated with the condition [9,10].

5. Conclusion

Based on the findings of this study, it is evident that an interdisciplinary approach involving both gynaecologists and periodontists could benefit pregnant patients, particularly those at risk of pre-eclampsia. Incorporating Peri-Operative Oral Functional Management (POFM) into the clinical care of pregnant women may offer significant advantages by addressing periodontal disease as a modifiable risk factor for pre-eclampsia. Given the positive response from gynaecologists regarding the potential benefits of collaboration with dental professionals, it is recommended that further educational initiatives be undertaken to raise awareness about the importance of oral health in preventing and managing pregnancy-related complications.

Implementing POFM as a standard practice in the management of pre-eclampsia could lead to improved maternal and foetal health outcomes, with the added benefit of enhancing both physical and psychological well-being through better overall care. Future studies should focus on clinical trials to establish the direct impact of POFM on pre-eclamptic outcomes and refine best practices for integrating dental care into obstetric management.

Compliance with ethical standards

Disclosure of conflict of interest

The authors declare no conflicts of interest.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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