Original article

Gynecologists Awareness Regarding Periodontal Disease and Adverse Pregnancy Outcome

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ABSTRACT

Pregnancy adverse outcomes are known as preterm birth (PTB) and low birth weight (LBW). Up to date the exact mechanism by which adverse outcomes occur is not known. One of the conditions that is reported by the literature could be associated or linked to it is periodontal disease (PD). Gynecologists are the primary health care providers, and are in constant contact with pregnant women. It has been recommended that gynecologist should have an acceptable level of knowledge regarding periodontal disease and adverse pregnancy outcome. **Objective:** To assess the level of awareness among gynecologists practicing in Benghazi, regarding to the association between periodontal disease and adverse pregnancy outcomes. **Methods:** Cross-sectional interview structured questionnaire study, was conducted to assess the level of awareness among gynecologists practicing in Benghazi city about the effect of chronic periodontal disease (PD) on pregnancy outcome. One hundred and seven Gynecologists participated in this study. The questionnaire consisted of 16 questions that assessed knowledge and attitude among the participated gynecologists. **Results:** The current study showed that while the majority of gynecologists knew about hormonal effects on the periodontium, and the common signs and symptoms of PD, only 20.6% were aware about the importance of a regular dental check-up during pregnancy. About 22.4% of them considered that PD could be a risk factor for adverse pregnancy outcome. We found that 87% of the gynecologists show an agreement that periodontal treatment should be an essential part of prenatal care program. **Conclusions**: this study concludes despite high level of awareness among gynecologist, very few refer or advise their patients to receive dental treatment during pregnancy. We suggest that continuing medical and dental education programs and intercommunication between healthcare providers may provide a better-quality healthcare service to the community.

Keywords: Periodontal disease, gynecologist, adverse pregnancy outcomes, Knowledge, attitude.

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Introduction

Oral health is considered a very essential aspect of general health. Periodontal disease is a chronic destructive disease that may lead to tooth loss eventually. During pregnancy, many changes occur such as oral inflammation presented as gingivitis and periodontitis. [1,2] Studies reveal that pregnancy hormones are considered nourishment for some oral microbes. [2] As a result, an increase in the tendency of gingival inflammation and bleeding gum is suspected, but the exact mechanisms causing preterm birth (PTB) and low birth weight (LBW) are still not understood.

PTB is defined as "labour or birth before 37 weeks of gestation and LBW is defined as birth weight less than 2500 grams". One possible pathway which explains the relation could be due to the inflammatory cascade. [3, 4,5]

Periodontal disease is responsible for chronic inflammatory challenges in the body which is caused by bacterial microorganisms. In which, the periodontal pathogens release substances that activate the immune-inflammatory chain of the patient. [4,5,6] Multiple clinical trials reported that periodontitis in expecting mothers may be a reason for the occurrence of preterm birth and low birth weight, [7,8,9,10] which it became an important concern because pregnancy adverse outcomes are considered a major reason for infant mortality. [10,11]

Gynecologists are the primary health care providers, who are in constant contact with pregnant women and provide the assessment and treatment for women during pregnancy.

This study was performed to evaluate and observe the level of awareness among the gynecologists in Benghazi city about the relation between periodontal disease and pregnancy outcome.

Methods

A cross-sectional study was conducted among gynecologists in Benghazi city; the participants were divided into groups based on institutional practice:
Group A: includes doctor's practice at medical college and/or hospitals.
Group B: includes doctor's practice at private hospitals.

A structured interview questionnaire was applied in this study. The questionnaire included 16 questions addressing as socio-demographic data. Questions that were used to evaluate the responsiveness of gynecologists toward oral health care of expecting mothers. One hundred and seven doctors participated in this study voluntarily. All doctors were informed about the type and aim of the study. This study was done in the period of (Dec. 2016-Dec. 2017). Periodontists from Faculty of Dentistry, University of Benghazi, arranged a fifteen minutes meeting with each gynecologist to answer the questionnaire. No personal data was required from the participants in this study.

Statistical analysis

After coding all of the questions used in the following study, the SPSS statistical package (version 18) was used to analyze the results. The answers were expressed in the form of the percentage of total participants for each question.

Results

A hundred and seven gynecologists completed the questionnaire. The participants were females (75. 7%) and (24.3%) were male.
Figure 1, shows the high percentage of respondents practiced in this study from both public (55.1%)., and private (34.6%) clinics, while (7.5%) were working in both sectors and (2.8%) were retired.

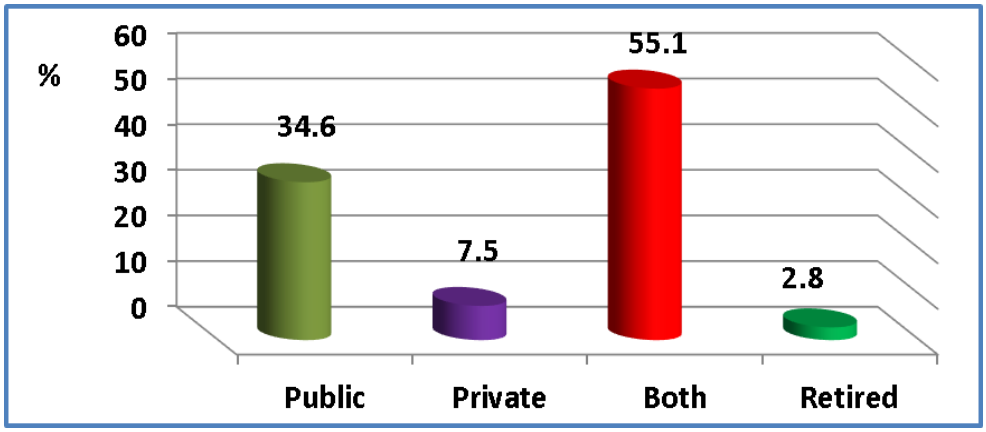

Figure 1: Distribution of respondents according to the place of work.

Table1, shows of 38.3 % of the participant had an experience of 6-10 years, and 31.8 % of the respondent had an experience of more than 10 years, while 29.9% had an experience of fewer than five years.

Figure 2, presents the knowledge of gynecologists regarding their opinions about the effect of the hormonal change on the periodontium during pregnancy. A high percentage of gynecologists reported that the most common complains and signs during pregnancy are the gingival swelling and bleeding with a percentage of (58.9% and 68.2%, respectively). A percentage of 48.6% believed that pregnancy may be associated with an increase in tooth loss. Where 47.7 % of them expressed their knowledge as that bad breath could be related to hormonal changes on the gum. While only 16.8% percent thought that pocket formation could happen. A cone chart illustrates the different opinions of specialists regarding the hormonal effect during pregnancy (Figure2).

Table 1: Distribution of respondents according to their years of working experience

Duration/years	No.	%
≤5	32	29.9
6-10	41	38.3
>10	34	31.8
Total	107	100

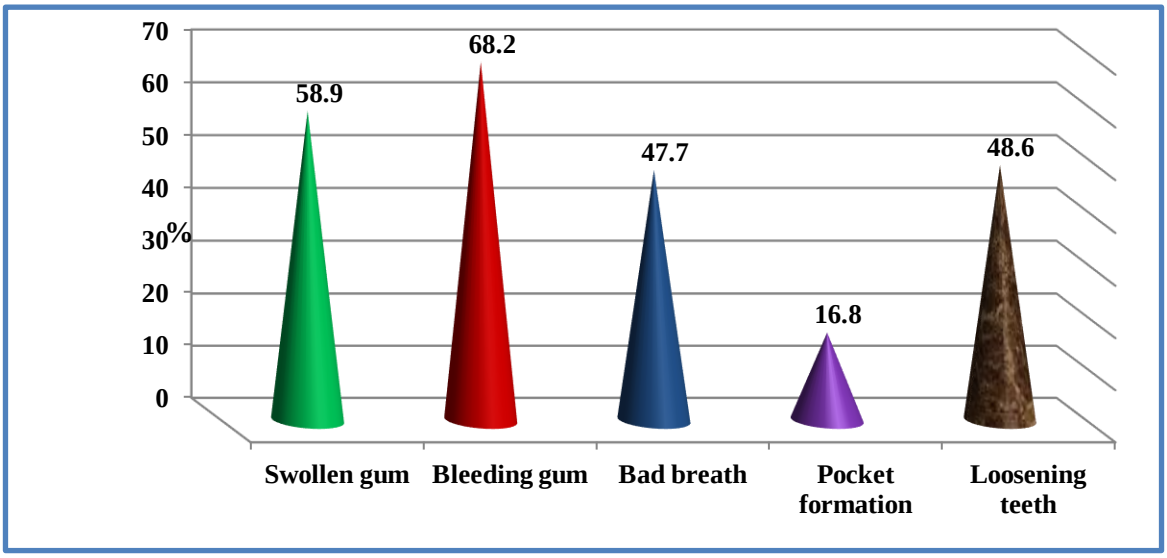

Figure 2: **Distribution of respondents according to their opinions about the effect of hormonal change.**

This study shows a percentage of 44.9% and 43% of participants which identified maternal smoking as an absolute and relative risk factor for pregnancy adverse outcome respectively. The respondents identified preeclampsia as a risk factor or possible risk factor with a percentage of 56.4%, 32.7% o respectively. Furthermore, 52.3 % per cent of gynecologists identified bacterial vaginosis as a definite risk and 37.4 % per cent as it could be possible risk factors for PAO. About (75.7%) of the consented gynecologists expected that periodontal disease is not considered as a risk factor for PTB and LBW. In the meantime, 22.4 % per cent agreed that it could be a risk factor, while only 1.9% believed that it is a definitive risk factor (Table 2).

Regarding the gynecologists' recommendations for dental examination during pregnancy, 20% of them always advise and recommend their patients for a dental examination. While 13.1% and 15% rarely or never recommended that respectively, the higher percentage 51% of the respondents, sometimes advice the pregnant women for a dental examination. These are illustrated in (Figure 3).

Figure 4, shows that 79.4% per cent of the respondent referred their patients to the general practitioner in dentistry, and 20.6% referred the patients to periodontists as illustrated in a pie chart.

Table2: Distribution of the respondents' opinion on preterm risk factors.

Risk factors	Possible risk		Definite risk		No risk	
	No.	%	No.	%	No.	%
Maternal smoking	**46**	**43**	**48**	**44.9**	**13**	**12.1**
Bacterial vaginosis	**40**	**37.4**	**56**	**52.3**	**11**	**10.3**
Periodontal disease	**24**	**22.4**	**2**	**1.9**	**81**	**75.7**
Preeclampsia	**35**	**32.7**	**70**	**65.4**	**2**	**1.9**

Seventy-three percent of the gynecologists sometimes would prescribe a mouth wash to their patients if they complain from bleeding gums. While 13% never prescribe a mouth wash to the patients who complain of bleeding or swollen gums (Figure 5).

The following paper showed a high percentage (87%) of the gynecologists agreed that periodontal treatment should be an essential part of prenatal care. The other 13% of the gynecologist did not approve of such an addition.

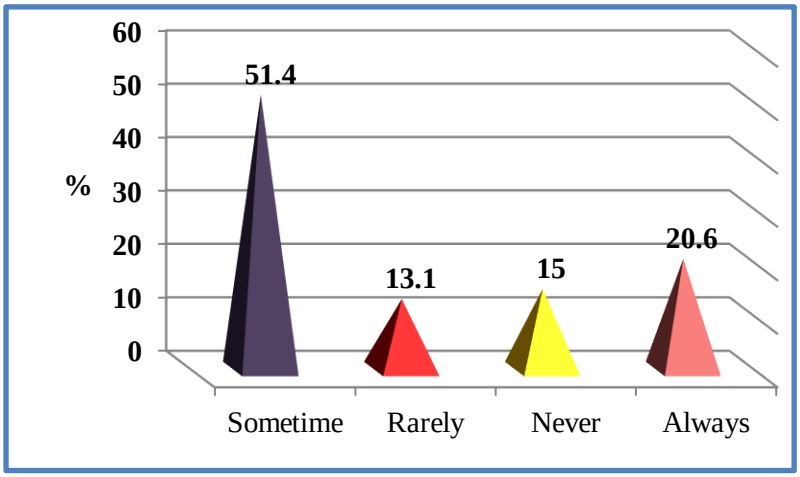

Figure 3: Recommendation for dental examination during pregnancy.

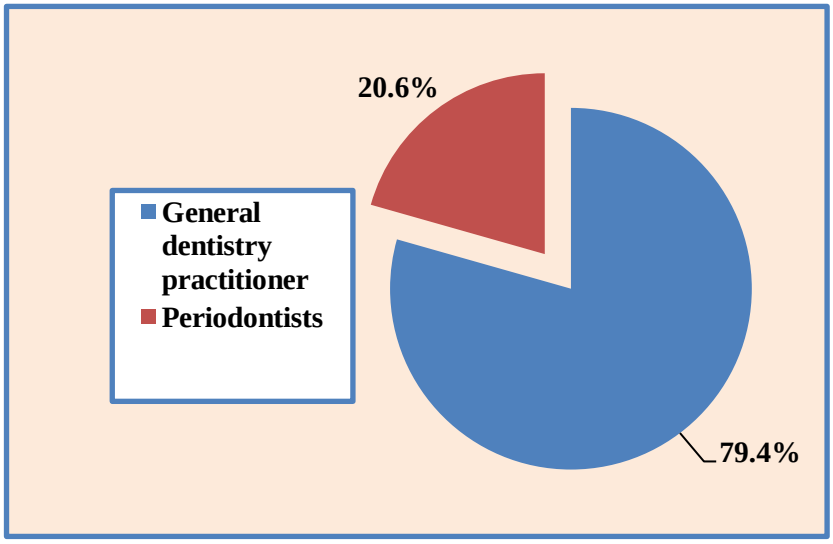

Figure 4: Referral of patients to GP or periodontist

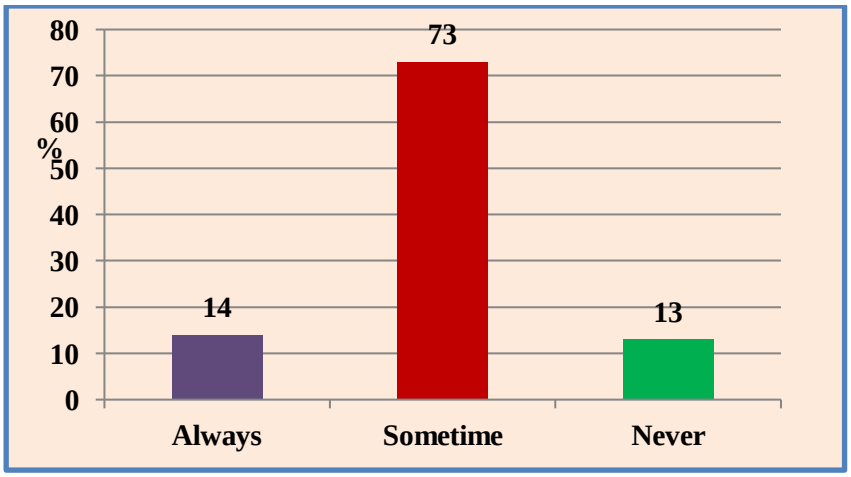

Figure 5: GP prescribed a mouth wash to a patient who complained of bleeding or swollen gum

Discussion

This cross-sectional study was conducted to assess the behavior of gynecologists about the relationship between periodontal disease and adverse pregnancy outcome. Periodontal health is significantly affected by female sex hormones. The most common signs that have been reported about the effect of hormonal changes during pregnancy are the swollen gums (58.6%), and bleeding gums (68.2%). The hormonal imbalance that occurs during gestation may lead to the exaggeration of inflammatory changes that happen in the periodontium such as bleeding and swelling. [12-14]

Multiple factors have been associated with PB and/or LBW. Some of which are preventable, (e.g., alcohol, smoking, high or low maternal age, low socioeconomic status, inadequate prenatal care, hypertension, generalized infections, cervical incompetence, diabetes, nutritional status, stress and multiple pregnancies) [15]. In this study, the essential circumstances such as pre-eclampsia and bacterial vaginosis are expected by a gynecologist to be highly associated with preterm birth. The other considerable factor is smoking, which is consistent with the epidemiology of preterm births. [16] In this study statistical analysis and comparison between socio-demographic and personal characteristics did not show any significant associations, owing to the small sample size.

Periodontal disease is linked to multiple systemic complications one of which if PAO. Previous studies suggest an estimation of about 18.2% of all PTB & LBW cases may be due to periodontal disease. [17] In this study (75.7% per cent) of the participated gynecologists denied the link between periodontal disease and PAO. Whereas, 22.4 % of them approved the presence of risk between the two parties, while only 1.9% believed that it is a definitive risk factor.

Offenbacher *et al*. 1996, Concluded that 18.2% of LBW may result from periodontal disease [17, 18]. In England, two large epidemiological studies showed no association between periodontal disease and PAO. [19, 20] This suggests that the effects of periodontal disease on PAO may be different according to multiple variable factors two of which such as the socioeconomic status and dental care**.** Inconsistencies may also arise due to the diversity that rises among the population, and disease severity. [21,22]

The difference in the gynecologists' knowledge regard the relationship of periodontal disease to premature birth/low birth weight, and the attitudes towards their patient were observed in (table 2). "Which highlights the need for interdisciplinary academic education, concerning integrated approaches to health care". [23] Lamster *et al.* [23] recommended that "communication among health professionals themselves, as well as with patients, is a key attitude toward health promotion". However, there are still some misconceptions among gynecologists regarding recommending dental treatments during pregnancy.

A percentage of (79.4%) of the consented gynecologist recommended their patients to visit the general dental practitioner. The remaining (20.6%) refer patients to a periodontist as they believed that periodontitis can relate to pregnancy complications, also they believe that periodontist gives the most beneficial treatment. During the gestation period, oral maintenance and prophylaxis are essential to prevent short- and long-term complications. [24]

Both of the American Academy of Periodontology (AAP) and Academy the of General Dentistry (AGD) [25,26,27] highly advise expecting mothers to receive regular oral maintenance and prophylaxis. Although it is not certain that active periodontal treatment during gestation improves pregnancy outcome, it is quite well noticed that dental treatment or care during pregnancy causes no harm. [28, 29, 30]

This study demonstrates that a percentage (87%) of the gynecologists approved that periodontal treatment should be an essential part of prenatal care program. As they are aware that pregnancy increases the like hood of gingival inflammation and non-surgical periodontal treatment is considered necessary during pregnancy, as the hormonal imbalance that occurs may lead to the exaggerated inflammatory changes of the gingiva. [30]

This study is limited to Benghazi city in Libya. For a more accurate conclusion, such a study should be expanded to include more Libyan.

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Conflict of Interest & Source of Funding

No external funding was available for this study. The authors declare that there are no conflicts of interests in this study

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