



Factors Associated to the Search for Dental Care in High Risk Pregnancy

Jessica Galvan^{1*}, Danielle Bordin², Cristina Berger Fadel^{3*}, Alessandra Martins³ and Fabiana Bucholdz Teixeira Alves³

Affiliation:

¹Multiprofessional Residency Program in Neonatology, State University of Ponta Grossa (UEPG), Ponta Grossa-PR, Brazil

²Department of Nursing and Public Health, State University of Ponta Grossa (UEPG), Ponta Grossa-PR, Brazil

³Department of Dentistry, State University of Ponta Grossa (UEPG), Ponta Grossa-PR, Brazil.

*Corresponding authors

***Jessica Galvan**, Multiprofessional Residency Program in Neonatology, State University of Ponta Grossa (UEPG), 199 Street João Pereira de Oliveira, Órfãs, Ponta Grossa, PR, Brazil, Tel: +5542999807290, E-mail: jegalvan21@gmail.com

***Cristina Berger Fadel**, Department of Dentistry, State University of Ponta Grossa, Carlos Cavalcanti 4748 Avenue, Block M, Uvaranas Campus, Ponta Grossa, PR zip code 84030-000, Brazil, E-mail: cbfadel@gmail.com

Citation: Galvan J, Bordin D, Fadel CB, Martins A and Alves FBT. Factors associated to the search for dental care in high risk pregnancy (2020) Dental Res Manag 4: 66-70.

Received: Nov 26, 2020

Accepted: Dec 22, 2020

Published: Dec 29, 2020

Copyright: © 2020 Galvan J, et al., This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Abstract

Introduction: Conducting dental consultations during pregnancy is considered an important challenge in the context of Maternal and Child Health Policies, as it is surrounded by myths rooted among users and health professionals. In this sense, it is important to identify barriers and facilitators to the search for dental assistance in this period, in order to support strategies that make this practice feasible. **Objective:** To analyze the search for dental care during high-risk pregnancies, according to sociodemographic, gestational and health characteristics.

Methods: Observational study with a cross-sectional design, carried out with high-risk pregnant women referred to a teaching hospital in southern Brazil, from January to May 2018. Data collection was performed using an unprecedented structured form and considered as a dependent variable the search for dental care during pregnancy and as independent variables sociodemographic, gestational and dental characteristics. Pearson's chi-square association test and Fisher's exact test were used. **Results:** To reach the sample of 190 pregnant women at high gestational risk, a total of 230 women considered valid were approached, counting on the following losses: refusal to participate (n=23), no answer to any question (n=10), duplicity in participant approach (n=7). Advanced maternal age (p=0.000) and history of premature birth in previous pregnancies (p=0.047) were factors associated with a lower frequency of seeking dental care in the current pregnancy. On the other hand, the habit of dental consultation prior to the gestational period (p=0.001), the knowledge about the importance of this monitoring (p=0.050), as well as the safety (p=0.000) in performing dental prenatal care, were related positively to the search during pregnancy.

Conclusion: Specific incentive strategies and access to dental prenatal care are necessary to neutralize barriers that may compromise the search for oral health services during pregnancy. For this reason, identifying the facilitators and hinders to the dental service is essential for planning effective actions related to prenatal care.

Keywords: Dental care, Prenatal care, Pregnancy, High risk

Abbreviation: SUS-Unified Health System

Introduction

According to the Brazilian Ministry of Health, high gestational risk is one that encompasses pregnancies in which the life or health of the mother-child binomial has a greater chance of complications, when compared to the average of pregnancies [1]. Within the scope of public policies in the country, the stratification of gestational risk is carried out initially in primary health care, after confirmation of pregnancy and registration of the pregnant woman, with subsequent maternal attachment to a specialized reference service, in order to make the adequate monitoring prenatal care to the specific needs of the pregnant woman [2]. Despite advances and permanent remodeling of the Unified Health System (SUS), especially with the creation of Health Care Networks and the Cegonha Network, instituted to foster the implementation of a new model of health care for women and

children, prenatal care in Brazil still suffers historical and social influences from the biomedical perspective, being, often, the approach of pregnant women based on installed problems and not on preventive practices [3]. The early identification of women with high gestational risk is fundamental for the assertive guidance of health professionals and for the woman herself, since it aims at raising awareness of her condition and health systems, with a view to reduction of maternal and neonatal morbidity and mortality [4-6].

Gestational risk is mainly related to maternal age, hypertension and diabetes, conditions that, in isolation or associated with other factors, can cause the development of oral diseases such as decreased salivary flow and greater occurrence of periodontal disease. In this sense, there

Citation: Galvan J, Bordin D, Fadel CB, Martins A and Alves FBT. Factors associated to the search for dental care in high risk pregnancy (2020) Dental Res Manag 4: 66-70.



is also a possible relationship between maternal periodontal disease and adverse problems during pregnancy, such as the occurrence of premature birth, identified in recent systematic reviews but which still lacks conclusive evidence that can confirm it [7-15].

Although not yet fully incorporated into the routine of health services, the performance of the dental surgeon and other professionals must occur in a synergistic manner, especially with the doctor who accompanies prenatal care, being relevant for reducing the neglect of self-care of the pregnant [16]. Aware that dentists' approach to high-risk pregnant women is a relevant theme for the consolidation of public maternal and child health policies, the objective of the study is to relate the search for dental care during high-risk pregnancy with sociodemographic characteristics, gestational and dental.

Methods

Cross-sectional observational, quantitative study carried out with high-risk pregnant women referred to a teaching hospital in southern Brazil that is a reference to public health for twelve small and medium-sized municipalities, with comprehensive care by SUS. The study considered all high-risk pregnant women who underwent medical prenatal care at the hospital, over 18 years old, in the 3rd trimester phase, and who agreed to participate in the research. The risk stratification recommended by the Ministry of Health followed [1]. Pregnant women with any acute or chronic condition that limited their ability to participate in the study were excluded. Data were collected between January and May 2018.

For the sample calculation, the average number of monthly visits to high-risk pregnant women in the third trimester of pregnancy (n=100) was considered, multiplied by the estimated months for collection (n=5), with an accuracy of 5%, confidence level 95% and design effect 1, for a prevalence of 27% of pregnant women who received dental care during pregnancy, resulting in a sample of 190 pregnant women. The imputed prevalence was based on a previous study of Moimaz et al. [17], with a population of similar characteristics. To estimate the sample, the Info 7.1.4 software was used.

For the composition of the sample, random stratification of the pregnant women was performed, alternating the days of information collection, aiming at covering pregnant women from all the municipalities assigned to the hospital under analysis. As the prenatal care service is organized on different days of the week, considering that each day of the week, one or two municipalities are covered, this methodological strategy was used in order to ensure relative homogeneity as to the number of pregnant women in each location, according to according to population size.

The information was collected through an individual interview with an unprecedented structured questionnaire, containing sociodemographic, gestational and dental characteristics during pregnancy, based on validated instruments from the Ministry of Health and previous studies [17-21]. The interview was conducted by two researchers trained to gather the necessary information and answer questions, without influencing the answers and lasted an average of 10 minutes. The pregnant women were invited to participate in the research while waiting for the prenatal consultation, being subsequently directed to a reserved environment inside the hospital itself.

A pilot study was carried out with 40 high-risk pregnant women using the study hospital, and the data obtained were not part of the sample. After this stage, there was a change in the approach and vocabulary used, in order to ensure the full understanding of pregnant women regarding the data collection instrument. The information was analyzed using descriptive statistics and bivariate analyzes, seeking to identify the independent associations among the variables investigated. The significance level of 5% was considered and the

association test used was Pearson's chi-square test and Fisher's exact test. The dependent variable listed was 'Search for Dental Care during Pregnancy' (considering the current pregnancy), and as independent variables sociodemographic characteristics (age, education, family income, marital status and occupation), gestational (clinical complications during pregnancy current, number of pregnancies, history of previous pregnancies and maternal pathologies) and dental (habit of consultation in the pre-pregnancy period, change in oral hygiene habits, self-perception of oral changes, self-assessment of oral health, and knowledge, safety and search for dental care in the current pregnancy).

The research was approved by the Research Ethics Committee with human beings of the State University of Ponta Grossa (opinion number 2,364,648; CAAE: 78544717.4.0000.0105, respecting the dictates of resolution 466/12 of the National Health Council and international standards for research with humans). The participating pregnant women consented to participate in the research by signing the Free and Informed Consent Form and the Term of Authorization of Place for the accomplishment of the research was signed by the academic director of the teaching hospital authorizing the accomplishment of the research in the ambulatory of high risk pregnant women.

Results

To reach the sample of 190 pregnant women at high gestational risk, a total of 230 women considered valid were approached, counting on the following losses: refusal to participate (n=23), no answer to any question (n=10), duplicity in participant approach (n=7).

The sociodemographic characteristics of the pregnant women were associated to the 'Search for dental care during pregnancy, with age being the only factor significantly associated. Pregnant women over the age of 35 were less likely to seek dental care when compared to the younger age (p<0.005). The search for dental care was predominant among pregnant women with complete basic or elementary education, family income between one and two minimum wages, married or in a stable union and home occupation (Table 1).

Sociodemographic characteristics	Searched for dental care during pregnancy			
	Yes (n=170) n (%)	No (n=20) n (%)	Total n (%)	P Value
Age range				p<0,01
18 to 25 years	72(42,4)	4 (20)	76 (40)	
26 to 35 years	71(41,7)	5 (25)	76 (40)	
Over 35 years	27 (15,9)	11 (55)	38 (20)	
Education				0.62
Complete basic or fundamental	104 (61,2)	14 (70)	118 (62,1)	
Complete medium or higher	66 (38,8)	6 (30)	72 (37,9)	
Family income				0.76
Up to a minimum wage	74 (43,5)	8 (40)	82 (43,2)	
Between one and two minimum wages	96 (56,5)	12 (60)	108 (56,8)	
Marital status				0.58
Married or in a stable relationship	96 (56,5)	10(50)	106 (55,8)	
Single or other state	74 (43,5)	10 (50)	84 (44,2)	
Occupation				0.99
From home	104 (61,2)	12 (60)	116 (61,1)	
General Services	34 (20)	4 (20)	38 (20)	
Another	32 (18,8)	4 (20)	36 (18,9)	

Table 1: Sociodemographic characteristics of high-risk pregnant women linked to the teaching hospital, according to the search for dental care during pregnancy. Ponta Grossa, Paraná, 2018 (n=190).

Table 2 shows the association among gestational, medical and oral health characteristics, with the search for dental care during pregnancy. Regarding to the investigated gestational variables, there was a statistically significant association only between pregnant



Searched For Dental Care During Pregnancy				
	Yes (n=170) n (%)	No (n=20) n (%)	Total n (%)	p Value
Gestational Characteristics				
Clinical complications during pregnancy				0.66
Present	102 (60)	13 (65)	115 (60,5)	
Absent	68 (40)	7 (35)	75 (39,5)	
Primi gestation				0.12
Yes	54 (31,8)	3 (15)	57 (30)	
No	116 (68,2)	17 (85)	133 (70)	
History of spontaneous abortion				0.76
Yes	29 (15,3)	5 (2,6)	34 (17,8)	
No	141 (74,2)	15 (7,9)	156 (82,1)	
History of premature birth				0.047
Yes	17 (9)	5 (2,6)	22 (11,2)	
No	153 (80,5)	15 (7,9)	168 (88,4)	
History of low birth weight child				0.14
Yes	16 (8,4)	4 (1,6)	20 (10,5)	
No	154 (81,6)	16 (8,4)	170 (89,5)	
Presence of maternal pathologies				0.86
Yes	102(53,7)	13(6,8)	115(60,5)	
No	68(35,8)	8(3,7)	76(39,5)	
Dental Characteristics				
Habit of dental consultation in the pre-pregnancy period				0.001
Yes	126 (74,1)	8 (40)	134 (70,5)	
No	44 (25,9)	12 (60)	56 (29,5)	
Change in oral hygiene habits during pregnancy				0.56
Yes	33 (19,5)	3(14,3)	36 (19)	
No	136 (80,5)	18 (85,7)	154 (81)	
Self-perceived change in the oral cavity during pregnancy				0.1
Yes	68 (40)	8 (40)	76 (40)	
No	102 (60)	12 (60)	114 (60)	
Oral Health Self-Assessment				0.85
Positive	114 (67,1)	13 (65)	127 (66,8)	
Negative	56 (32,9)	7 (35)	63 (33,2)	
Knowledge about the importance of dental care during pregnancy				0.05
Yes	63 (37,1)	3 (15)	66 (34,7)	
No	107 (62,9)	17 (85)	124 (65,3)	
Safety regarding dental care during pregnancy				0.11
Yes	155(81,6)	16(8,4)	171(90)	
No	15(7,9)	4 (2,1)	19(10)	
Guidance for seeking dental care during pregnancy				0
Yes	160 (94,1)	9 (45)	169 (88,9)	
No	10 (5,9)	11 (55)	21 (11,1)	

Table 2: Gestational, medical and oral health characteristics of high-risk pregnant women linked to the teaching hospital, according to the variable 'Search for Dental Care during Pregnancy'. Ponta Grossa, Paraná, 2018 (n=190).

women who did not seek dental care and a history of premature birth (p=0.047). Among the oral health characteristics analyzed, pregnant women who claimed to have the habit of consulting the dental surgeon before pregnancy and pregnant women who were instructed to seek this professional during pregnancy were associated with the search for dental care during pregnancy (p=0.001 and 0.000, respectively).

Discussion

Themes such as access or use of dental services by high-risk pregnant women were not found in the literature, which highlights the need for studies with this population and specific themes. The results of the present study showed that pregnant women over the age of 35 and pregnant women with a history of premature birth were less likely to seek dental care during pregnancy. On the other hand, pregnant women who already had the habit of seeking the dental surgeon before

the gestational period and pregnant women who received this guidance effectively sought dental care more frequently.

It is known that maternal age has a strong influence on the perinatal medical condition of pregnant women and their babies, with a higher risk of low birth weight for children of very young mothers or mothers between 35 and 39 years old and with a higher risk of mortality for mothers over 40 years of age [22-25]. In addition, Dias et al. [26], points to a possible relationship among the presence of adverse results involving high-risk pregnancies with other socioeconomic contexts, such as low income and low educational level. Although these parameters seem to act as indicative of health care, education and income, they were not significantly related to the search for dental care during pregnancy in the present study.

In the context of oral health, the relationship found between older pregnant women and lower frequency of seeking dental care suggests advanced maternal age also as a risk marker for the maintenance or aggravation of oral diseases. The contact with the dental surgeon during high-risk pregnancy becomes even more relevant, since preexisting oral conditions can be exacerbated during the gestational period and are related to systemic diseases [27-30].

Regarding to prematurity in the gestational period, although its etiology is multiple, maternal age over 35 years and the absence of qualified prenatal care are often identified as risk factors. Despite not completely conclusive and diverse interactions, which need more robust evidence, also points to the relationship with periodontal disease as a possible risk factor for the occurrence of premature birth; low birth weight and pre-eclampsia [12-15,31-33].

Among these gestational complications, a history of premature birth was the only data collected that showed a significant relationship with the search for dental care during pregnancy. Women with no history of preterm birth in a previous pregnancy sought the dental surgeon in the current pregnancy more frequently, which may suggest a positive habit of dental consultation during pregnancy by these women, and consequently the treatment and prevention of periodontal disease, or even suggest a greater importance they attach to oral health care during pregnancy.

Another finding of the study was the positive association between the habit prior to pregnancy to seek the dentist and the maintenance of this practice during the gestational period. Although the demand for dental services during pregnancy has traditionally been low and is mainly related to episodes of dental pain, behavior experts say that behaviors that help in promoting and maintaining health are generally developed during childhood and adolescence, and maintained in adulthood [34-36].

In this sense, access strategies that enable dental care in the pre-conception period are fundamental, since the lack of routine dental care in the pre-pregnancy period is pointed out as the most significant predictor of non-receipt of this care during pregnancy. In the specific case of pregnant women, barriers imposed by beliefs and myths that dental treatment should be postponed during pregnancy, coupled with feelings of professional insecurity act as agents against the search for dental care by pregnant women. For this reason, oral health education appears as a necessary behavioral practice to neutralize the fear present among pregnant women, by bringing the possibilities of dental treatment during the gestational period and facilitating the understanding of the necessary procedures [37-40].

On the other hand, the results showed that the guidance given to pregnant women, in the search for dental care, showed a positive relationship with the frequency with the dentist, which is relevant to the performance of the health team during the prenatal period and the insertion of oral health professionals in an interdisciplinary team. A similar result was found in a study with pregnant women of habitual



risk, in which the incentive to seek dental care and the referral of the pregnant woman to the dental surgeon during prenatal care were key factors for the pregnant woman's decision to seek dental care in pregnancy [41].

Thus, the insertion of the dental surgeon in prenatal care and the exploration of characteristics of high-risk pregnant women become essential to control, prevent and treat perinatal health problems. The early identification of intraoral changes allows the treatment and prevention of clinical conditions that can impact the quality of life of the pregnant woman and the baby, and that can act as risk factors for unfavorable obstetric outcomes [36]. However, the presence of the dental surgeon in the interdisciplinary prenatal team is not yet a consolidated reality in several places, however, as a way of raising awareness, it is suggested both by the team and by the population of pregnant women when the risk of oral and systemic problems through the adoption of attitudes favorable to oral health [42].

As limitations of this study, we highlight the sample's regionality, whose results do not allow extrapolation, and the specific aspects of cross-sectional surveys and the use of interviews as a data collection instrument. Another limiting aspect was the scarcity of research with high-risk pregnant women, which hindered the discussion of the findings in the light of the literature.

Conclusions

Specific incentive strategies and access to dental prenatal care are necessary to neutralize barriers that may compromise the search for oral health services during pregnancy. For this reason, identifying the facilitators and hinders to the dental service is essential for planning effective actions related to prenatal care. It is also concluded that the inclusion of actions aimed at women during the prenatal period in oral health services, with an emphasis on health guidance, is of great importance to promote the quality of life of pregnant women.

References

1. [Ministry of health. High-risk pregnancy: state hospital referral systems for high-risk pregnant women/MS \(2001\) Executive Sec. Brasilia-DF, Brazil.](#)
2. [Ministry of Health. Health Care Secretariat. Department of strategic programmatic actions, high-risk pregnancy: technical manual. \(2010\) Brasilia-DF, Brazil.](#)
3. [Ministry of Health. Office of the Minister \(2011\) Brazil.](#)
4. Medeiros FF, Santos IDL and Ferrari RAP. Prenatal care for high-risk pregnancies in the public service (2019) *Rev Bras Nurse* 72: 204-211. <http://dx.doi.org/10.1590/0034-7167-2018-0425>
5. Alves FLC, Castro EM, Souza FKR, Lira MCPS, Rodrigues FLS, et al. Group of high-risk pregnant women as a health education strategy (2019) *Rev Gaúcha Enferm* 40: 1-7. <https://doi.org/10.1590/1983-1447.2019.20180023>
6. [Paraná. Paraná State Department of Health \(SESA\) \(2018\).](#)
7. Almeida BBP, Morales JDC, Luz GS, Rissardo LK, Pelloso SM, et al. Maternal age and perinatal outcomes in high-risk pregnancies (2018) *Rev Nur* 21: 2513-2517. <https://doi.org/10.1590/1983-1447.2019.20180023>
8. Antunes MB, Demitto MO, Gravena AAF, Padovani C and Pelloso SM. Hypertensive syndrome and perinatal outcomes in high-risk pregnancies (2017) *REME-Rev Min Enferm* 21: e1057. <https://doi.org/10.5935/1415-2762.20170067>
9. Guerra JVV, Alves VH, Jack COS, Rodrigues DP, Branco MBLR, et al. Destination diabetes and prenatal care at high risk (2019) *Enfer UFPE online* 13: 449-454. <https://doi.org/10.5205/1981-8963-v13i02a235033p449-454-2019>
10. Moimaz SAS, Rós DT, Saliba TA and Garbin CAG. Aspects of general and oral health of high-risk pregnant women: Literatures review (2017) *J Health Sci Inst* 35: 223-30.
11. Yao HMD, Xu DMD, Zhu ZMD and Wang GMD. Gestational diabetes mellitus increases the detection rate and the number of oral bacteria in pregnant women (2019) *Medicine* 98: 14903. <https://doi.org/10.1097/MD.00000000000014903>
12. Teshome A and Yitayeh A. Relationship between periodontal disease and preterm low birth weight: systematic review (2016) *Pan Afr Med J* 24: 215. <https://doi.org/10.11604/pamj.2016.24.215.8727>
13. Daalderop LA, Wieland BV, Tomsin K, Reyes L, Kramer BW, et al. Periodontal Disease and Pregnancy Outcomes: Overview of Systematic Reviews (2018) *JDR Clini Trans Res* 3: 10-27. <https://doi.org/10.1177/2380084417731097>
14. Manrique-Corredor EJ, Orozco-Beltran D, Lopez-Pineda A, Quesada JA, Gil-Guillen VF, et al. Maternal periodontitis and preterm birth: Systematic review and meta-analysis (2019) *Community Dent Oral Epidemiol* 47: 243-251. <https://doi.org/10.1111/cdoe.12450>
15. Polyzos NP, Polyzos IP, Zavos A, Valachis A, Mauri D, et al. Obstetric outcomes after treatment of periodontal disease during pregnancy: systematic review and meta-analysis (2010) *BMJ* 341: 7017. <https://doi.org/10.1136/bmj.c7017>
16. Silveira JLGC, Abraham MW and Fernandes CH. Pregnancy and oral health: Meanings of oral health care for pregnant women not adhering to treatment (2016) *Rev APS* 19: 568-574.
17. Moimaz SAS, Rocha NB, Saliba O and Garbin CAS. The access of pregnant women to dental treatment (2007) *Dent J City São Paulo Uni* 19: 39-45. https://doi.org/10.26843/ro_unicidv3032018
18. [Ministry of Health. Department of Health Care. Department of Primary Care \(2004\) National Oral Health Policy Guidelines, Brasilia-DF, Brazil.](#)
19. [Ministry of Health. Pregnancy Booklet \(2018\) Brasilia-DF, Brazil.](#)
20. IBGE. Brazilian Institute of Geography and Statistics (2013) *National Health Survey*. <https://biblioteca.ibge.gov.br/visualizacao/livros/liv94074.pdf>
21. Bordin D. Quality of public dental service in Brazil: the perception of users and health professionals (2014).
22. Londero AP, Rossetti E, Pittini C, Cagnacci A and Driul L. Maternal age and the risk of adverse pregnancy outcomes: A retrospective cohort study (2019) *BMC Preg Childbir* 19: 261. <https://doi.org/10.1186/s12884-019-2400-x>
23. Luo J, Fan C, Luo M, Fang J, Zhou S, et al. Pregnancy complications among nulliparous and multiparous women with advanced maternal age: a community-based prospective cohort study in China (2020) *BMC Preg Childbir* 20: 581. <https://doi.org/10.1186/s12884-020-03284-1>
24. Alves NCC, Feitosa KMA, Mendes MES and Caminha MFC. Complications in pregnancy in women aged 35 or older (2017) *Rev Gaucha Enferm* 38: 2017-42. <http://dx.doi.org/10.1590/1983-1447.2017.04.2017-0042>
25. Laopaiboon M, Lumbiganon P, Intarut N, Mori R, Ganchimeg T, et al. Advanced maternal age and pregnancy outcomes: a multicountry assessment (2014) *BJOG* 1: 49-56. <https://doi.org/10.1111/1471-0528.12659>
26. Dias E, Anjos G, Alves L, Pereira SN and Campos L. Socioeconomic and gynecological obstetric profile of pregnant women in a family health strategy in Northern Minas Gerais (2018) *Revista Saúde e Desenvolvimento* 12: 284-297.
27. Ho CC and Chou MY. Periodontal status in Taiwanese pregnant women (2016) *J Dent Sci* 11: 146-151. <https://doi.org/10.1016/j.jds.2016.03.007>
28. Liccardo D, Cannavo A, Spagnuolo G, Ferrara N, Cittadini A, et al. Periodontal Disease: A Risk Factor for Diabetes and Cardiovascular Disease (2019) *Int J Mol Sci* 20: 1414. <https://doi.org/10.3390/ijms20061414>
29. Cardoso EM, Reis C and Manzanares-Céspedes MC. Chronic periodontitis, inflammatory cytokines, and interrelationship with other chronic diseases (2018) *Postgrad Med* 130: 98-104. <https://doi.org/10.1080/00325481.2018.1396876>

Citation: Galvan J, Bordin D, Fadel CB, Martins A and Alves FBT. Factors associated to the search for dental care in high risk pregnancy (2020) *Dental Res Manag* 4: 66-70.



30. Winning L, Patterson CC, Cullen KM, Kee F and Linden GJ. Chronic periodontitis and reduced respiratory function (2019) *J Clin Periodontol* 46: 266-275. <https://doi.org/10.1111/jcpe.13076>
31. Fuchs F, Monet B, Ducruet T, Chaillet N and Audibert F. Effect of maternal age on the risk of pretermbirth: A large cohort study (2018) *PLoS ONE* 13: e0191002. <https://doi.org/10.1371/journal.pone.0191002>
32. Chambrone L, Guglielmetti MR, Pannuti CM and Chambrone LA. Evidence grade associating periodontitis to preterm birth and/or low birth weight: I. A systematic review of prospective cohort studies (2011) *J Clin Periodontol* 38: 795-808. <https://doi.org/10.1111/j.1600-051X.2011.01755.x>
33. Aly LA, El-Menoufy H, Elsharkawy RT, Zaghlood MZ and Sabry D. Maternal chronic oral infection with periodontitis and pericoronitis as a possible risk factor for preeclampsia in Egyptian pregnant women (microbiological and serological study) (2015) *Fut Dent J* 1: 23-32. <https://doi.org/10.1016/j.fdj.2015.11.002>
34. Ruiz LF, Uffermann G, Vargas-Ferreira F, Bavaresco CS, Neves M, et al. Use of Dental Care Among Pregnant Women in the Brazilian Unified Health System (2019) *Oral Health Prev Dent* 17: 25-31. <https://doi.org/10.3290/j.ohpd.a41980>
35. Konzen Júnior DJ, Marmitt LP and Cesar JA. Non-performance of dental consultation among pregnant women in southern Brazil: a population-based study (2019) *Ciênc. Saúde saúde* 24: 3889-3896. <https://doi.org/10.1590/1413-12320182410.31192017>
36. Rigo L, Dalazen J and Garbin RR. Impact of dental orientation given to mothers during pregnancy on oral health of their children (2016) *Einstein* 14: 219-25. <http://dx.doi.org/10.1590/S1679-45082016AO3616>
37. Ferreira SMSP, Pinheiro ES, Silva RV, Silva JF, Batista LD, et al. Dental prenatal care: accessibility and actions offered by primary care in Vitória da Conquista-BA (2016) *Faculty Dent Lins/Unimep* 26: 3-16. <https://doi.org/10.15600/2238-1236/foi.v26n2p3-16>
38. Botelho DLL, Lima VGA, Barros MMAF and Almeida JRS. Dentistry and pregnancy: The importance of dental prenatal cares (2019) *SANARE* 18: 69-77. <https://doi.org/10.36925/sanare.v18i2.1376>
39. Nogueira LT, Júnior A, Martins CR, Rosell FL and Silva SRC. Delay in seeking dental treatment and perception of oral health in pregnant women (2012) *Odontol Clín-Cient* 11: 127-131.
40. Oliveira LFAS, Rocha RA and França MMC. The Importance of Dental Prenatal Care for Pregnant Women: Bibliographic Review (2017) *Multidiscipl Scient J Core Knowl* 1: 5-17.
41. Corchuelo-Ojeda J and González Pérez GJ. Socioeconomic determinants of dental care during pregnancy in Cali, Colombia (2014) *Cad Publ Health* 30: 2209-2218. <https://doi.org/10.1590/0102-311X00152413>
42. Alves RT, Oliveira AS, Leite ICG, Ribeiro LC and Ribeiro RA. Epidemiological and attitudinal profile of oral health of pregnant women users of the public service of Juiz de Fora, MG (2010) *Pesqui Bras Pediatric Dentistry Clin Integr* 10: 413-421. <https://doi.org/10.4034/1519.0501.2010.0103.0013>