

Oral Manifestations During Pregnancy

Armijos Briones, Fernando Marcelo¹, Cunalata Toapaxi, Zulay De Los Ángeles², Segura Acosta, Jessica Pamela³, Mena Silva, Paola Andrea⁴

¹Universidad Regional Autónoma de los Andes UNIANDES, Ambato, Ecuador.

Email: ua.fernandoarmijos@uniandes.edu.ec

<https://orcid.org/0000-0002-5500-4768>

²Universidad Regional Autónoma de los Andes UNIANDES, Ambato, Ecuador.

Email: oa.zulaydct95@uniandes.edu.ec

<https://orcid.org/0000-0002-8474-1302>

³Universidad Regional Autónoma de los Andes UNIANDES, Ambato, Ecuador.

Email: oa.jessicapsa@uniandes.edu.ec

<https://orcid.org/0000-0002-7161-0362>

³Universidad Regional Autónoma de los Andes UNIANDES, Ambato, Ecuador.

Email: dir.odontologia@uniandes.edu.ec

<https://orcid.org/0000-0001-9242-0296>

Abstract

Pregnancy is a dynamic state of physiological changes that affect the health, perceptions and interactions with the environment of a pregnant woman. A pregnant woman needs medical supervision, prevention and physical and emotional support throughout this period. The care of the teeth of a pregnant woman requires special attention, delaying some of the therapeutic gestures, coinciding with the period of pregnancy destined for maturation and organogenesis. The application of preventive dentistry focuses on prenatal and postnatal care. In this article, we review some of the oral manifestations associated with pregnancy such as periodontitis, gingivitis and tooth decay, therefore, these changes can affect the oral health of a pregnant woman.

Keywords: pregnancy, periodontitis, gingivitis, tooth decay, oral health.

1. Introduction

Oral health is paramount to the rest of the stomatognathic system, unlike normal physiological changes. Pregnancy is a particularly vulnerable time for oral health, pregnant women should know more about the changes that occur in the oral cavity during pregnancy. (1)

The hormonal changes that occur during pregnancy are responsible for the modification of the mother's body, and the oral cavity is no exception. Therefore, it is essential to know these changes, their involvement in oral health and the effects that potential diagnostic and therapeutic interventions can have during pregnancy and lactation. (1)

After fertilization, the entire body of the pregnant woman prepares for the long process during which she will have to house the fetus and meet its metabolic needs. All the modifications, both physical and psychological, that happen during pregnancy, have. The consideration of physiological although undoubtedly suppose a severe organic alteration. (2) It is important to educate mothers about the importance of self-care related to oral hygiene. So that the mother has the knowledge of what she can see in her mouth and the steps she can take to improve gingivitis and prevent it from getting worse by reducing her hygiene habits. (2) Mechanistic studies provide strong evidence that periodontal pathogens can migrate from infected gums to the fetal unit and initiate metastatic infection. However, the extent and mechanism by which

inflammation and metastatic lesions contribute to adverse pregnancy outcomes remain unclear. The presence of oral bacteria in the placenta at term further complicates our understanding of the biology underlying the role of periodontal pathogens in pregnancy outcomes. (3)

Periodontal changes during pregnancy indicate the appearance of plaque and tartar during pregnancy and after childbirth and their number increases over time, these irritants act on the gum tissue during pregnancy and after childbirth but that mild irritants cause more inflammation after childbirth than during pregnancy. In addition, the increase of these hormones during pregnancy influences periodontal tissues affecting the local immune system, gingival vascularity, biofilm and specific cells of the periodontium. (4)

Susceptibility to tooth decay during pregnancy may increase due to factors such as increased levels of *Streptococcus mutans* and *Lactobacilli acidophilus*, increased carbohydrate intake and increased frequency of vomiting, as well as an imbalance in saliva pH. These risk factors were mentioned, in relation to a previous pregnancy, which can increase the severity of oral diseases that affect a woman during pregnancy. (5)

Demineralization occurs due to the loss of calcium for the baby, but the enamel has a very slow mineral exchange retaining its mineral content. Likewise, pregnant women are subjected to situations that make them sensitive to suffering from this disease. The salivary composition and oral flora are altered, producing physiological xerostomia that facilitates the

appearance of caries. (6)

Studies conducted, it was established that periodontal diseases and other infectious diseases of the oral cavity adversely affect the course and outcome of pregnancy. The main problems are the lack of health education for women on preparation for pregnancy and cleaning of foci of infection in the oral cavity before and during pregnancy, as well as poor access to dentists and lack of preventive measures. Adequate prevention and, where appropriate, treatment of oral diseases. (7)

As for immunity during pregnancy, transient immunosuppression caused by progesterone has an immunomodulatory effect with rebound effect at the level of the gingival epithelium, reducing the anti-inflammatory immune response, bacterial biofilm, producing a chronic inflammatory response indirectly related to periodontitis, which the inflammatory process is a biological response of vascular tissues against a physical attack, chemical or biological. (8)

2. Materials and Methods

A bibliographic review of articles published in journals where they meet the chosen parameters and

Document Type	Keywords	Databases	Obtained Articles	Featured Articles	Used Items
Literature review	Pregnancy and oral health	Pubmed	54 results	52 discarded (did not offer information to meet the objective of the study)	2 items
Literature review	Pregnancy and oral	Scielo (disambiguation)	6 results	2 discarded (did not offer information to meet the objective of the study)	4 items
Literature review	Oral manifestations and Pregnancy	Pubmed	95 results	94 discarded (did not offer information to meet the objective of the study)	1 items
Literature review	Oral manifestations and pregnancy	Google scholar	44 results	43 discarded (did not offer information to meet the objective of the study)	1 item

The search was limited using only scientific articles found in highly reliable databases mentioned above; To discard the articles, some parameters were considered: discarding repeated articles, articles that scientists found in high reliability bases mentioned above; To discard the articles, some parameters were considered: discarding repeated articles, articles that were not in English or Spanish, articles that do not provide enough information to meet the objective of the study and bibliography that was not within the period 2017-2022.

The results of the search in total were 191 articles in which the authors reviewed the abstracts of each article were discarded under the parameters established for this bibliographic review, of which only 8 bibliographies served as support material.

6. Discussion

In the articles used for this literature review, it was supported about the oral manifestations during pregnancy, which brings with it adjustments in female physiology that affect the oral health of pregnant women. (1) The most common oral diseases are cavities and gingivitis, which can affect the oral and overall health of the future baby if not treated in time. Consider the prenatal period for disease prevention. (2)

conceptualizations according to the objective of the research was carried out.

3. Exclusion and Inclusion Criteria

We collect articles with full-text format in Spanish and English with publication date from 2017 to 2022. The articles chosen correspond to bibliographic reviews and case reports where oral manifestations are rewarded with respect to pregnant women during pregnancy. In which articles with topics that are not related to pregnancy were excluded.

4. Search Strategy

A bibliographic, exploratory and non-experimental, qualitative research was carried out using articles from the biomedical database: PubMed, and also from the student database: Scielo, Google Scholar. For the search we included all possible terms "gingivitis", "oral health", "periodontal disease", "pregnancy", "women's health care

5. Results

Tooth decay is transmitted vertically from mother to child. Because periodontitis is a risk factor for pregnant women, premature babies, or low birth weight babies, premature and low birth weight babies are a direct cause of infant mortality and are associated with an increased incidence of systemic diseases. this topic. disease in adulthood. (8)

In addition, it was established that gingivitis indicates that pregnancy causes an exaggerated response of periodontal tissue to the challenge of local irritants. However, by itself it does not trigger an inflammatory response. (2)

Oral manifestations during pregnancy is an important topic that affects many women. Pregnancy causes hormonal changes that can lead to a range of oral health issues, including gingivitis, periodontitis, pregnancy tumors, and tooth decay. In addition, there are certain oral manifestations that are unique to pregnancy, such as pregnancy-associated pyogenic granuloma and erosion of dental enamel due to frequent vomiting. The article by Clara Elisa Pozo Hernández(9) highlights the importance of nutrition during early childhood and its correlation with anthropometric measurements. While the study does not directly address oral manifestations during pregnancy, it does highlight the importance of nutrition

during early childhood, which can have long-term effects on oral health.

Ariel Romero Fernández et al. (100) studied the level of knowledge in dental medical emergencies of dentistry students using neutrosophic values. While the study does not focus on oral manifestations during pregnancy, it highlights the importance of dental emergency preparedness and the need for proper education and training for dental students.

In the article by Vázquez, Cevallos, and Ricardo (11), sentiment analysis is used as a tool for studying qualitative data in legal research. While the article does not directly address oral manifestations during pregnancy, it demonstrates the importance of using innovative research tools to study complex issues.

Assessment of project-based learning is the focus of the article by Ricardo, Vázquez, and Fernández (12). While the study does not focus on oral manifestations during pregnancy, it highlights the importance of effective education and training in addressing complex issues.

Finally, the article by Ricardo, Vázquez, and Hernández (13) addresses the impact of legal research on post-pandemic social problems in Ecuador. While the article does not focus on oral manifestations during pregnancy, it highlights the importance of interdisciplinary research in addressing complex social issues.

In conclusion, while the articles referenced do not directly address oral manifestations during pregnancy, they highlight the importance of education and research in addressing complex issues related to healthcare and social problems. Further research is needed to better understand the causes and prevention of oral manifestations during pregnancy, as well as effective strategies for addressing these issues.

7. Conclusion

Scientific evidence supports that the nutritional status of the patient before conception is as important as nutrition during pregnancy and is one of the determinants of maternal and child health. A mother can suffer many deficiencies during pregnancy if her diet does not contain the nutrients she needs. Due to the importance of this aspect, the pregnant women of the series are grouped according to their nutritional status.

Many authors agree that malnutrition is not the only cause of periodontal conditions, but since well-nourished patients are more resistant, immunosuppression, even along with local and general changes during pregnancy, there is no doubt that they influence periodontal conditions. Better response to therapeutic techniques, in addition to local irritants, external injuries and damage to the body itself.

Bibliographies

Hartnett E, Haber J, Krainovich-Miller B, Bella A, Vasilyeva A, Lange Kessler J. Oral health during pregnancy. *J Obstet Gynecol Neonatal Nurs* [Internet]. 2018 [cited 11 August 2022];45(4):565–73. Available in: <https://pubmed.ncbi.nlm.nih.gov/27281467/>

Alfaro Alfaro A, Castejón Navas I, Magán Sánchez R, Alfaro Alfaro MJ. Pregnancy and oral health. *Rev clín*

med fam [Internet]. 2018 [cited 11 August 2022];11(3):144–53. Available in:

https://scielo.isciii.es/scielo.php?script=sci_arttext&pid=S1699-695X2018000300144

Bobetsis YA, Graziani F, Gürsoy M, Madianos PN. Periodontal disease and adverse pregnancy outcomes. *Periodontol 2000* [Internet]. 2020 [cited 11 August 2022];83(1):154–74. Available in:

<https://pubmed.ncbi.nlm.nih.gov/32385871/>
Martínez Malavé L, Salazar CR V, Ramírez de Sánchez G. Social stratum and prevalence of gingivitis in pregnant women. Yaracuy State, San Felipe Municipality. *Acta Odontol Venezuela* [Internet]. 2020 [cited 11 August 2022];39(1):19–27. Available in: http://ve.scielo.org/scielo.php?script=sci_arttext&pid=S0001-63652001000100005

Pérez Oviedo AC, Betancourt Valladares M, Espeso Nápoles N, Miranda Naranjo M, González Barreras B. Dental caries associated with risk factors during pregnancy. *Rev Cubana Estomatol* [Internet]. 2011 [cited 23 August 2022];48(2):104–12. Available in: http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0034-75072011000200002

Alfaro A, Unit A, Alfaro AA, Navas IC, Magán Sánchez R, Jesús M, et al. Pregnancy and oral health [Internet]. Isciii.es. [cited 23 August 2022]. Available in: <https://scielo.isciii.es/pdf/albacete/v11n3/1699-695X-albacete-11-03-00144.pdf>

Makeeva IM, Ignatko AA, Churganova AA, Lebedev VA, Makeeva MK. Periodontal diseases and complicated pregnancy. *Stomatologiya (Mosk)* [Internet]. 2019 [cited 23 August 2022];98(1):70–3. Available in: <https://pubmed.ncbi.nlm.nih.gov/30830097/>

Lorenzo-Pouso AI, Pérez-Sayáns M, González-Palanca S. Relationship between gingival health in pregnant women with obstetric complications. *Aten Primaria* [Internet]. 2017 [cited 23 August 2022];49(10):621–2. Available in: <http://dx.doi.org/10.1016/j.aprim.2017.01.017>

Clara Elisa Pozo Hernández, Edid Tatiana Mejía Álvarez, Edgar Toni Villa Shagnay and Sara Guerrón Enríquez, Priorization of educational strategies on nutrition and its correlation in anthropometry in children from 2 to 5 years with neutrosophic topsis, *Neutrosophic Sets and Systems*, vol. 34, 2020, pp. 09-15. DOI: 10.5281/zenodo.3843274

Ariel Romero Fernández, Elsy Labrada González, Diego Loyola Carrasco, Study on the Level of Knowledge in Dental Medical Emergencies of Dentistry Students through Neutrosophic Values, *Neutrosophic Sets and Systems*, vol. 37, 2020, pp. 99-107. DOI: 10.5281/zenodo.4122035

Vázquez, M. Y. L., Cevallos, R. E. H., & Ricardo, J. E. (2021). Análisis de sentimientos: herramienta para estudiar datos cualitativos en la investigación jurídica. *Universidad Y Sociedad*, 13(S3), 262-266.

Ricardo, J.E., M.L. Vázquez, and A.R. Fernández, Assessment of project-based learning. *Investigacion Operacional*, 2022. 43(3): p. 409-419.

Ricardo, J. E., Vázquez, M. Y. L., & Hernández, N. B. (2022). Impacto de la investigación jurídica a los problemas sociales postpandemia en Ecuador. *Universidad y Sociedad*, 14(S5), 542-551.