

## STUDY OF THE CORRELATION BETWEEN ORAL DISEASES AND PREMATURE DELIVERY

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### *Herbert Gherse*

Professor of the Discipline of Integrated Clinic IV - Dentistry – UFPB. João Pessoa/PB  
<http://lattes.cnpq.br/0479607659594698>

### *Eloisa Lorenzo de Azevedo Gherse*

Professor of the Discipline of Integrated Clinic IV - Dentistry – UFPB.  
João Pessoa/PB  
<http://lattes.cnpq.br/0405685264028055>

### *Amanda Azevedo Gherse*

General Practitioner by the institution: UBS Sítio Novo de Itabaiana - PB. João Pessoa/PB  
<http://lattes.cnpq.br/3954916611586266>

### *Iuri Adônis de Souza Nascimento*

Resident Doctor in Pediatrics at the institution: Hospital Municipal Infantil Menino Jesus – São Paulo - SP  
<http://lattes.cnpq.br/1660663161782609>

### *Kauanne Fonseca de Lima*

Dentist surgeon  
Master's student in Dental Sciences at the institution: UFPB. João Pessoa/PB  
<http://lattes.cnpq.br/4721016862022269>

### *Wanêssa Trigueiro Casimiro*

Dental Surgeon for UFPB  
Medical student at the institution: Faculdade de Ciências Médicas da Paraíba.  
João Pessoa/PB  
<http://lattes.cnpq.br/0227463766787311>

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**Noeme Coutinho Fernandes**

Resident physician in Pediatrics at the institution: Hospital Universitário Lauro Wanderley – João Pessoa – PB  
<http://lattes.cnpq.br/1671589873622308>

**Wille Guedes Magalhães Neto**

Academic of the Medicine course of the Faculdade de Ciências Médicas da Paraíba João Pessoa/PB  
<http://lattes.cnpq.br/0669301449857925>

**Abstract:** The concern to relate oral disease with gestational problems has been the subject of several studies, with often conflicting results. **Goal:** to evaluate the association of caries and periodontal diseases with premature births in postpartum women from a public maternity hospital in northeastern Brazil. **Materials and methods:** this is a descriptive study with a quantitative approach. The sample consisted of 61 postpartum women and their babies who were interns in the wards of Instituto Cândida Vargas. The sample calculation was based on the estimated population served at this institution in the study's time interval, which lasted four months. For the analysis of oral diseases, the women were examined and the values for the CPOD and periodontal caries (CPI) indices were obtained. Gestational age was obtained from the respective medical records. **Results:** The CPOD index showed an average result of 8.4, the CPI index presented the same value. The mean gestational age was 36 weeks and of the 61 postpartum women, 30 had premature births. **Conclusion:** The DMFT and CPI indices demonstrated the experience of caries and periodontal diseases in the sample. Despite a statistically significant correlation between the mother's DMFT index and the event of premature birth of the babies, it cannot be said that this correlation was the only determinant, further investigations are suggested.

**Keywords:** Caries disease, periodontal disease, puerperal women, premature births.

## INTRODUCTION

The gestational period is a phase in which there are important changes in a woman's body, physiology, physical and mental health. Many factors can affect both positively and negatively the course of pregnancy with or without consequences for the development of the fetus. The ideal is that during pregnancy the woman is in perfect health. This does not

always happen, there are countless adversities that may be present as inherent conditions of the woman herself, such as age, pre-existing diseases, socioeconomic conditions, acquired infections, diet, sedentary lifestyle, drug use, domestic violence, among others.

The influence of oral health on pregnant women has been the subject of research and discussions, since caries and periodontal diseases are of multifactorial origin, of an infectious nature caused by the mandatory participation of certain specific microorganisms. These are diseases that are present in a large part of the population, especially in disadvantaged groups of people. The involvement in pregnant women arouses the interest of the scientific community due to the possible gestational risk and also due to the mother-child binomial.

Studies relating periodontal disease to premature births are widely discussed in the literature, the evidential results generate controversy (COSTA, AMORMINO, et al., 2012).

The risk of lesions or increased cariogenic activity in pregnant women is also a constant. They can occur mainly due to changes in diet, increased food frequency, difficulty in maintaining good oral hygiene due to the presence of nausea and vomiting. Assessment of increased risk of caries disease in Brazilian pregnant women showed a range of high to moderate risk linked to carbohydrate consumption (AGUIAR, VALSEKI JR, et al., 2011). Thus, it is important to know the increased risk of caries in pregnant women so that effective preventive measures can be implemented.

The Ministry of Health, through the Basic Guidelines for Prenatal Care, inserted dental care into the primary health care network, given the great need for oral care during pregnancy (Women's Health Program 2008)

The concern to relate oral disease with

gestational problems has also been a reason for research (MIANA, OLIVEIRA, et al., 2010), (MOIMAZ, SALIBA, et al., 2011).

The present investigation aims to evaluate the association of caries and periodontal diseases with premature births in postpartum women at a public maternity hospital in northeastern Brazil.

## **METHODOLOGY**

This is a descriptive study with a quantitative approach. The sample consisted of 61 postpartum women and their babies who were interns in the wards of Instituto Cândida Vargas. The sample calculation was based on the estimated population served at this institution in the study's time interval, which lasted four months. Women who refused to participate in the research and/or oral examination were excluded. The objective was to relate the DMFT and periodontal caries index (CPI) of mothers to the occurrence of prematurity at the birth of their children.

The research was submitted for approval to the Research Ethics Committee of the Hospital Universitário Lauro Wanderley and was approved under protocol number 1,626,106. After application of the Free and Informed Consent Term (FICT), oral exams were performed to evaluate the caries index (DMFT - Decayed, Lost and Filled Teeth) and periodontal (CPI - Community Periodontal Index). Then, the medical records of the respective participants were also examined to collect some data, including the gestational age.

The oral examinations of the puerperal women were performed in the bed of the wards of the Instituto Cândida Vargas, in the city of João Pessoa/PB/Brazil.

According to the DMFT index, caries experience was considered absent (DMFT equal to zero); low (DMF values between 1 and 4); moderate (DMF values between 5 and

8); and high (DMF values equal to or greater than 9). For the CPI index, the values were considered by sextant: 0 - sound sextant; 1 - sextant with bleeding; 2 - calculation; 3 - bag from 4 mm to 5 mm; 4 - pocket of 6 mm or more; X - sextant excluded (less than 2 teeth present); 9 - unexamined sextant (MINISTRY OF HEALTH - DEPARTMENT OF PRIMARY CARE, 2004).

Data were analyzed using an Excel® spreadsheet and SPSS® statistical software, version 20.0, considering relative and absolute values.

## RESULTS

The age of the women involved in the research ranged from 14 to 40 years, with a mean of 24.16 (Table I).

Of the total of 61 postpartum women, 20 (32.8%) had a vaginal delivery, while 41 (67.2%) had a cesarean section (Table II).

The mean gestational age was 35.9 weeks, with a minimum of 26.0 and a maximum of 41.0 weeks (Table III).

Considering a premature birth, which reached, at most, a gestational age of 37.0 weeks, we have the following frequencies: occurrence of normal birth = 50.8% (n = 31) and premature birth = 49.2% (n = 30) (Table IV).

The DMFT index (Table V) determines the number of decayed (C), missing (P) and filled (O) teeth in each individual. The mothers' DMFT ranged from 1 to 22 (mean = 8.44).

The CPI index considers values assigned to each sextant examined (Table VI: hex

As all samples in all variables are normally distributed, the correlation test was used to assess the interaction:

Pearson's test (Table VII) shows a statistically significant correlation between the mother's DMFT index and the event of premature birth of the babies ( $p > 0.05$ )

## DISCUSSION

There are several factors that contribute to the increase in gestational risk that can have numerous consequences, including prematurity of childbirth. Authors have sought to relate high-risk pregnancy to arterial hypertension, maternal age, gestational diabetes, oral diseases, among other complications (MINISTRY OF HEALTH - DEPARTMENT OF PRIMARY CARE, 2005), (MARTINS, GHERSEL and GHERSEL, 2017) (NASCIMENTO, GHERSEL, et al., 2018) (SAVA, MARCH and PEPINE, 2018). The present study analyzed 61 postpartum women aged between 14 and 40 years, with an average age of 24 years (Table I), 41 of them had cesarean delivery (Table II) and 20 had vaginal delivery. Almost half of the sample, 30 women (49.2%) had premature births (Table IV). The high rates of premature births found in this study are probably due to the fact that data collection was carried out in four wards, one of them was intended for high-risk pregnant women, however, they are consistent with results found by (DURAND, GUNSELMAN, et al., 2009). On the other hand (BOGESS, K. A. and EDELSTEIN, B. L., 2006) found much lower rates, around 12%.

Oral diseases are present in pregnant women to a greater or lesser extent, but their numbers are significant in that population (CUSTÓDIO, 2019). Caries disease during pregnancy has been the reason for several approaches to studies in the search for solutions or reduction of diseases. As it is a multifactorial disease (NEWBRUN, 1998), infectious and contagious, transmission is vertical, usually from mother to child in the first years of the child's life (ZAZE, TONDATTI, et al., 2014). Therefore, there is a real need to educate and treat mothers to prevent the disease in their children. A study that evaluated the knowledge and self-perception regarding oral health of pregnant

Age		
N	Valid	61
	Absent	0
Average		24,1639
Median		22,0000
Error Deviation		7,21152
Break		26,00
Minimum		14,00
Maximum		40,00

Table I – Ages of mothers involved in the research

		Frequency	Percentage	Valid Percentage	Cumulative percentage
Valid	Vaginal	20	32,8	32,8	32,8
	Caesarean	41	67,2	67,2	100,0
	Total	61	100,0	100,0	

Table II – type of delivery

Gestational age		
N	Valid	61
	Absent	0
Average		35,9852
Median		37,2000
Error Deviation		3,70993
Break		15,00
Minimum		26,00
Maximum		41,00

Table III – gestational age (in weeks)

		Frequency	Percentage	Valid Percentage	Cumulative percentage
Valid	No	31	50,8	50,8	50,8
	Yes	30	49,2	49,2	100,0
	Total	61	100,0	100,0	

Table IV – occurrence of premature birth

CPOD

N	Valid	61
	Absent	0
Average		8,4426
Median		8,0000
Error Deviation		4,84260
Break		21,00
Minimum		1,00
Maximum		22,00

Table V – Mothers’ DMFT Index

CPI

N	Valid	61
	Absent	0
Average		8,4262
Median		7,0000
Deviation error		6,83486
Break		33,00
Minimum		,00
Maximum		33,00

Table VI – CPI index of mothers

		CPOD	Premature
CPOD	Pearson’s Correlation	1	-,084
	Sig. (2 ends)		,521
	N	61	61
Premature	Pearson’s Correlation	-,084	1
	Sig. (2 ends)	,521	
	N	61	61

Table VII – Correlation between the mother’s DMFT index and the occurrence of preterm birth

and postpartum women showed that 16.9% believed that pregnant women could not receive dental treatment, in addition 58.4% were unaware of the causes of dental caries and periodontal diseases, hence the lack of information. contributes to the worsening of oral health (CASIMIRO, LIMA, et al., 2018). In the present study, the DMFT index in the population studied was 8.4, showing a caries experience considered moderate, but close to high, which presents values from 9, similar data were found by (MATTOS BNC, 2015), (SHANTHI, VANKA, et al., 2012). This demonstrates that this disease still significantly affects the population of young women in the reproductive phase, which can be perpetuated in their children if there is no type of preventive or curative strategy.

The periodontal condition of the Brazilian population was analyzed in a national survey in 2003, through the Community Periodontal Index (CPI). The analysis showed the presence of periodontal disease in 53.5% of the sample in people aged between 15 and 19 years and 67.7% between 35 and 44 years of age, it can be noted that the disease progresses and worsens. with increasing age (MINISTRY OF HEALTH - DEPARTMENT OF PRIMARY CARE, 2004) (OFFENBACHER, BECK, et al., 1998). In this present study, the CPI values showed an average of 8.4 (Table VI), high values of the CPI index suggest a high prevalence of the disease, the literature presents similar expressions (SHANTHI, VANKA, et al., 2012) (MATTOS BNC, 2015).

Many investigations seek to analyze the relationship between oral diseases and premature births. Some relate premature births and low birth weight to periodontal disease (OFFENBACHER, BECK, et al., 1998). However, a critical review that surveyed literature of fifteen years, showed divergence between authors regarding the determination of periodontal disease to gestational

complications (COSTA, AMORMINO, et al., 2012). In the present investigation, the values of the CPI index demonstrate the experience of periodontal disease in parturients, but other issues must be analyzed in the causes of prematurity. The same applies to caries, despite a statistically significant correlation between the mother's DMFT index and the event of premature birth of babies, we cannot say that this is an exclusively determining factor.

As several disorders can interfere with the course of pregnancy, this association between oral diseases and preterm births has been controversial in the literature and most studies suggest further investigation (COSTA, AMORMINO, et al., 2012), (MOIMAZ, SALIBA, et al., 2011).

## CONCLUSIONS

The DMFT and CPI indices demonstrated the experience of caries and periodontal diseases in the sample. Despite a statistically significant correlation between the mother's DMFT index and the event of premature birth of the babies, it cannot be said that this correlation was the only determinant, further investigations are suggested.

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