

# EPIDEMIOLOGICAL PROFILE OF PREGNANT WOMEN WITH COVID-19 AND THEIR NEWBORNS: TIME FRAME

Aline Dahmer da Silva\* Adriana Zilly\*\* Maria Aparecida Baggio\*\*\* Cláudia Silveira Viera\*\*\*\*

### **ABSTRACT**

**Objective:** to describe the epidemiological profile of pregnant women affected by COVID-19 and their newborns in a teaching hospital in western Paraná. **Methodology:** documentary, retrospective, cross-sectional research, with consultation of institutional documents, health information systems for notification and full reading of electronic medical records of pregnant women admitted to a teaching hospital. The period investigated was from March 2020 to April 2022, comprising a sample of 121 pregnant women hospitalized due to COVID-19 and 114 newborns, being analyzed using descriptive statistics. **Results:** pregnant women infected with SARS-CoV-2 did not have any newborn infected at birth, 13 (10.74%) pregnant women required admission to the Intensive Care Unit, 4 (3.30%) maternal deaths and 3 (2.63%) fetal deaths occurred. Most births were by cesarean section (n=61; 50.41%), with low birth weight (n=24; 21.05%) and prematurity (n=25; 21.92%), with higher rates compared to those prior to the pandemic. **Conclusion:** the epidemiological scenario presented was similar to that presented in the literature, verifying the non-vertical contamination. As maternal and neonatal outcomes, there was a higher occurrence of cesarean sections, maternal deaths, prematurity and low birth weight among those infected.

Keywords: COVID-19. Pregnancy. Health profile. Newborn.

### **INTRODUCTION**

Coronaviruses are a family of viruses responsible for causing respiratory diseases in humans, such as Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERs), detected in 2003 and 2012, respectively, with high mortality rates. In December 2019, the first cases of a new infection emerged in China of a new coronavirus called SARS-CoV-2, the etiological agent of COVID-19<sup>(1-2)</sup>.

At the beginning of November 2022, 632,334,249 cases of COVID-19 were confirmed worldwide. In Brazil, 34,850,373 cases were recorded, making it the fourth country with the highest number of cases of the disease, and second in cases of deaths, with 688,342 deaths. In pursuit of the United States of America, with 1,072,582 deaths<sup>(3)</sup>.

Pregnant women are among the groups most

clausviera@gmail.com. Lattes: http://lattes.cnpq.br/6839368106425711. ORCID iD: 0000-0002-0900-4660

at risk for COVID-19. The vulnerability of this group is linked to a series of changes in body physiology, inherent to the gestational period<sup>(4)</sup>. As a result, there is an increase in maternal morbidity and mortality, as well as complications for the newborn (NB), when compared to those who were not affected by the disease. Prematurity, low birth weight and hypoxia, characterized by an Apgar score lower than 7, are some of the consequences for NB of mothers exposed to infection<sup>(5-6)</sup>.

In Brazil, the total number of pregnant women infected with SARS-CoV-2 and hospitalized for SARS was 3,107 and 514 in Paraná. Maternal mortality in this period, both in Brazil and in Paraná, showed an increase in overall rates, and maternal deaths from COVID-19 in the state were 112 women during 2022<sup>(3,7)</sup>.

Based on the analysis of data available in Datasus from 2020 to 2021, the epidemiological profile of pregnant women positive for COVID-

<sup>\*</sup>Nursing student Universidade Estadual do Oeste do Paraná. Cascavel, Paraná, Brasil. E-mail: alinedahmer15@gmail.com. ORCID iD: 0000-0002-0317-3367.

<sup>\*\*</sup>Biologist. Pharmacist. Universidade Estadual do Oeste do Paraná. Associated Professor at Nursing Collegiate and Post Graduation Program in Public Health in Border Regionsa. Foz do Iguaçu, Paraná, Brasil. E-mail: aazilly@hotmail.com. ORCID iD: 0000-0002-8714-8205.

<sup>\*\*\*</sup>Nurse. Universidade Estadual do Oeste do Paraná. Adjunct Professor of the Nursing Course and the Postgraduate Program in Public Health in the Border Region. Paraná, Brasil. E-mail: mariabaggio@unioeste.br. Lattes: http://lattes.cnpq.br/2992418583503546. ORCID: https://orcid.org/0000-0001-6901-461X.

\*\*\*\*Nursing. Universidade Estadual do Oeste do Paraná. Associate Professor of the Nursing Course and Graduate Program in Biosciences and Health. Cascavel, Paraná, Brasil. E-mail:

19 in Brazil<sup>(8)</sup> showed that they were characterized by young, mostly brown women, with the presence of morbidities and typical symptoms of the disease such as dyspnea, fever and cough. In the Northeast region, specifically in Bahia, the description of infected pregnant women indicated that more than 60% of the total sample had no comorbidities, required supplementary oxygen support, more than 50% were hospitalized in the ICU with a median of 3 days of hospitalization and the incidence of death was less than 1%<sup>(9)</sup>. However, in the South region, there are still no publications on this topic.

With regard to newborns, it is necessary to highlight that prenatal care is of paramount importance to provide adequate intrauterine development, as well as having quality care during delivery is essential for the early life of this child. Among the main actions in the hospital environment, the first assessment of the NB is the Apgar score, which verifies the neonate's response to life after birth. The importance for the mother-child dyad of early skin-to-skin contact, the encouragement of breastfeeding, and later, the guarantee of rooming-in, neonatal screening tests, actions that seek to provide an incentive to the maternal bond and the early identification of NB diseases<sup>(4)</sup>. However, in the pandemic period, many of these strategies could not be implemented due to the restrictions required by the pandemic. Coronavirus infection during pregnancy resulted in intrauterine growth restriction and a higher rate of preterm and low birth weight births<sup>(10)</sup>.

In view of the above, the question is: What is the epidemiological profile of pregnant women affected by COVID-19 and their NB in a teaching hospital in the municipality of Cascavel – PR?

The study aimed to describe the epidemiological profile of pregnant women affected by COVID-19 and their newborns admitted to a teaching hospital in western Paraná.

### **METHODOLOGY**

Documentary, retrospective, descriptive, quantitative, cross-sectional study carried out

from the electronic patient record (EPR) in the Tasy® system of the teaching hospital, field of study, the Information System of the National Immunization Program (SIPNI) and the Health Surveillance Secretariat (SIVEP) of the municipality.

The list of pregnant women diagnosed with COVID-19, admitted to the hospital, was obtained through the Hospital Epidemiological Surveillance Center (NVEH) and the Hospital Infection Control Commission (CCIH) for consultation with the EPR, in order to describe the epidemiological profile of pregnant women and their NB. For information on the status of the vaccination schedule, referring to the COVID-19 vaccine, when they were admitted to hospital, the SIPNI was consulted. To identify those infected in the municipality, during the study period, access was made to SIVEP, Notify COVID.

Pregnant women who were hospitalized during the study period, with a diagnosis of COVID-19, regardless of the gestational period, were listed as inclusion criteria. Pregnant women with no notification of the disease and/or incomplete data in the medical record, which prevented access to clinical and demographic information, were excluded.

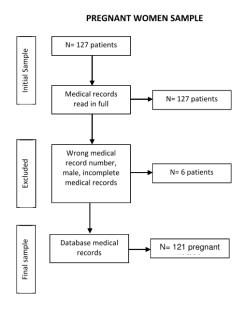
Data collection covered the period from March 2020 to April 2022. Data were tabulated in an Excel® spreadsheet and analyzed using descriptive statistics.

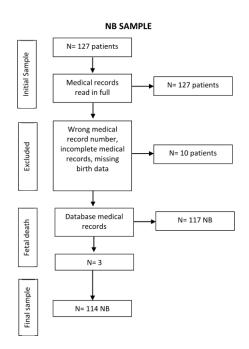
The variables collected were subdivided into maternal: date of hospitalization, date of notification, place of notification, municipality of origin, date of birth, age, race, education, risk factors and comorbidities, symptomatic or asymptomatic, performance and result of imaging tests, use of medications, gestational age, type of delivery, outcome - hospitalization, intubation, discharge or death, vaccination against COVID-19 – performance and period of immunization in relation to the time of hospitalization due to disease. The variables related to the NB referred to anthropometric data birth - birth weight, height, head circumference, weight classification in relation to gestational age at birth, Apgar at 1 and 5 minutes, examination to confirm SARS-CoV-2 infection, outcome - hospitalization, discharge or death.

The study derives from the project "Coping with COVID-19 and maternal and child health", approved by the Human Research Ethics Committee of the State University of Western Paraná - UNIOESTE, under opinion 4,730,796 and with the promotion of notice 11/2020 EPRSUS: shared management in health, 2020/2021 edition, Fundação Araucária.

### **RESULTS**

To understand the data found and the sample size, a flowchart was prepared containing the number of pregnant women and initial newborns and the final sample, consisting of 121 pregnant women and 114 newborns (Figure 1).





**Figure1:** Sample of pregnant women with COVID-19 and their newborns who composed the study sample. Cascavel, 2022.

**Source:** Prepared by the authors.

The profile of 121 pregnant women affected by COVID-19 was characterized in relation to sociodemographic data (Table 1) and clinical data

on health history and pregnancy in the face of the COVID-19 pandemic (Table 2).

**Table 1.** Sociodemographic profile of pregnant women positive for COVID-19. Cascavel – PR, 2022. n=121

Variables	N	%
Age		
15 to 20 years	15	12.40
20 to 25 years	33	27.27
25 to 30 years	32	26.45
31 to 35 years	23	19.00
35 to 40 years	9	7.44
40 to 46 years	9	7.44
Educat	ion	
Incomplete elementary school I	1	0.83
Complete elementary school I	3	2.48
Incomplete elementary school II	18	14.88
Complete elementary school II	7	5.79
Incomplete high school	17	14,05

Cienc Cuid Saude. 2023;22:e66121

Completed high school	58	47.93
Incomplete university education	5	4.13
Complete university education	4	3.30
Illiterate	1	0.83
Not informed	7	5.78
Race		
Yellow	0	0
White	93	76.86
Brown	21	17,36
Black	5	4.13
Data unavailable	2	1.65
Religion		
Catholic	78	64.46
Evangelical	33	27.27
Jehovah's Witness	1	0.83
Not Informed	9	7.44
Origin		
Brazilian	116	95.87
Haitian	2	1.65
Venezuelan	2	1.65
Paraguayan	1	0.83
Marital State	IS	
Single	21	17.36
Married	37	30.58
Divorced	2	1.65
Widow	1	0.83
Not informed	7	5.78
Common-law marriage	53	43.80
Occupation		
Manager	6	4.96
Freelancer	17	14.05
Farmer	4	3.30
Unemployed	1	0.83
Housewife	35	28.93
Student	5	4.13
Professional with a formal contract	21	17.35
Not informed	32	26.45
Smoking	32	200
No	80	66.95
Yes	8	6.61
Not informed	32	26.44
Source: Research data	32	

Source: Research data

Most hospitalized pregnant women were young, aged 20 to 30 years (65; 53.72%), identified as white (93; 78.86%). It was evidenced that 58 (47.93%) had completed high school, had occupations in the various sectors of industry and commerce, most were Catholic (78; 64.46%), 53

women (43.80%) in common-law marriage and 37 married (30.58%). In the pregnant woman's medical record, all denied the consumption of alcohol; with regard to smoking, most (80; 66.12%) denied the use of tobacco.

**Table 2.** Variables related to maternal health history, route of delivery of the study pregnancy, prenatal care, period of identification of infection, vaccination against COVID-19, clinical condition in relation to COVID-19, maternal outcomes. Cascavel -PR, 2022. n=121

Variables	N	%
Maternal health history		
Gestational Diabetes Mellitus (GDM)	14	10.37
Hypothyroidism	9	6.67
Hypertensive Syndromes in Pregnancy (HSP)	7	5.19
No comorbidities	75	55.56

Prenatal testing		
Absence of registration in medical record	105	86.78
Performed properly	4	3.30
Not performed properly	11	9.09
Not performed	1	0.83
Route of delivery study pregnancy		
Cesarean section	61	50.41
Normal	55	45.46
Absence of registration	5	4.13
period Infection identification		
Second trimester	3	2.48
Third trimester	114	94.21
Lack of information	4	3.31
Vaccination against COVID-19		
Not vaccinated due to missing doses	19	63.33
Not vaccinated due to personal option	11	36.67
Vaccinated with 1 dose	15	12.40
Vaccinated with 2 doses	49	40.50
Vaccinated with 3 doses	6	4.96
Vaccinated with 1 <sup>st</sup> dose after hospitalization	19	15.70
Lack of records	2	1.65
Clinical picture at hospitalization		
Asymptomatic	61	50.41
Symptomatic	60	49.59
Cough	31	51.67
Respiratory distress/dyspnea	29	48.33
Fever	22	36.67
COVID-related interventions		
Supplemental oxygen	6	4.96
Intubation	12	9.92
Extracorporeal membrane oxygenation	1	0.82
Maternal outcomes		
Hospital discharge	117	96.70
Maternal death	4	3.30

Source: Research data

Among the pregnant women analyzed, it was found that the majority (75: 55.56%) had no prenatal comorbidities. Regarding information was scarce due to the lack of registration in the medical record (105; 86.78%), serving as a warning sign for the service, given the importance of such data. Among the information 16 (13.22%) pregnant women who had prenatal records in the medical records, only 4 (3.30%) adequately performed prenatal care, 1 woman (0.83%) did not perform prenatal care, performed (9.09%)prenatal inadequately. As an outcome of pregnancy, there were 61 (50.41%) cesarean sections and 55 (45.45%) vaginal deliveries, and 5 (4.13%) pregnant women did not have information on the route of birth.

Regarding the clinical picture of the disease, it was found that the difference between those pregnant women who presented symptoms or not was minimal, where 61(50.41%) had no symptoms, and the others were symptomatic (60;

49.59%). Of these, the main manifestation was cough (31; 51.67%), followed by discomfort and/or dyspnea, and fever (22; 36, 67%), emphasizing that the patients could present more than one indication of the disease.

As for the diagnosis of COVID-19, it significantly during third occurred the gestational trimester (114; 94.21%). Of the total pregnant women. 6 (4.96%)required supplemental oxygen, 12 (9.92%) were intubated and one pregnant woman (0.82%) used Extracorporeal Membrane Oxygenation (ECMO), two (1.65%) women were also diagnosed with preeclampsia and Hellp syndrome.

It was reported that 30 (24.79%) pregnant women were not vaccinated, most of them (19; 63.33%) were contaminated before the start of the supply of doses of the vaccine to the general population and to the obstetric population. It is noted that 49 (40.50%) pregnant women affected by COVID-19 and who were hospitalized had

already received two doses of the vaccine and only 6 (4.96%) had had three doses of the vaccine. Before hospitalization, 19 (15.70%) pregnant women had not started the COVID-19 vaccination schedule.

Regarding the outcome, most were discharged from hospital (117; 96.70%), however, there were 4 deaths (3.30%); one during hospitalization using ECMO (0.82%) and the other three deaths (2.48%) after hospital

discharge, and the record was verified through the documents accessed. According to data from the municipality of the research, two more maternal deaths were recorded, of which the pregnant women did not receive care at the reference hospital of the study.

Table 3 shows the profile of NBs of infected pregnant women regarding clinical characteristics at birth and in relation to SARS-CoV-2 infection.

**Table 3.** Characterization of newborns of mothers with COVID-19. Cascavel – PR, 2022. N=114

	Variables	N	%
	Sex		
Female		49	42.98
Male		65	57:02
	Birth weight		
1000 gr to 1499 gr	S	1	0.88
1500 gr to 2499 gr		23	20.17
2500 gr to 2999 gr		27	23.68
3000 gr to 4499 gr		62	54.39
No information		1	0.88
	Height		
39 cm to 40 cm		1	0.88
41 cm to 43 cm		11	9.65
44 cm to 46 cm		22	19.30
47 cm to 49 cm		45	39.48
50 cm to 52 cm		31	27.19
Above 53 cm		2	1.75
No information		2	1.75
	Cephalic perimeter		
25 cm to 29 cm	1 1	5	4.39
30 cm to 34 cm		75	65.79
35 cm to 39 cm		33	28.94
No information		1	0.88
	Apgar 1'		
0-3	* 0	7	6.13
4-6		13	11.40
7-10		94	82.47
	Apgar 5'		
0-3	* 0	1	0.88
4-6		1	0.88
7-10		112	98.25
	Adequacy of weight x GI		
SGA <sup>1</sup>		5	4.39
$AGA^2$		102	89.47
LGA <sup>3</sup>		6	5.26
No information		1	0.88
	Gestational age		
28-30 weeks	C	2	1.75
30-32 weeks		2	1.75
32-34 weeks		9	7.89
34 to 36 weeks		12	10.53
37 weeks		11	9.65
38 weeks		26	22.81
39 weeks		36	31.58
40 weeks		15	13.16
Over 40 weeks		1	0.88

Examination to confirm SARS-CoV	7-2 infection		
Performed with negative result	60	52.63	
Performed without result registration	43	37.72	
Not executed	11	9.65	
Outcome			
NICU	14	12.28	
NICU	6	5.26	
Rooming-in – COVID ICU	78	68.42	
Rooming-in – maternity	15	13.16	
Rooming-in – obstetric center	1	0.88	

**Source:** Research data. (1) Small for Gestational Age (2) Adequate for Gestational Age. (3) Large for Gestational Age.

Mostly, boys were born (65; 57.02%), although the gestational age of 39 weeks was prevalent (36; 31.58%), there was a higher occurrence of premature births (25; 21.92%). Most newborns weighed between 3000 and 4499 grams (62; 54.39%), however, there was a higher frequency of weight below 2500 grams (24; 21.05%), which practically coincides with the frequency of preterm newborns (PTNB) (25; 21.92%). Regarding the adequacy between weight and gestational age at birth, most were born Adequate for Gestational Age – AGA (102; 89.47%).

In the evaluation of asphyxia at birth, obtained by the Apgar score, the majority of the newborns obtained scores above 7 at the 1<sup>st</sup> minute (94; 82.47%) and at the 5<sup>th</sup> minute 112 (98.25%), indicating that the newborns were born with good vitality and those who presented some degree of asphyxia at the 1<sup>st</sup> minute (20; 17.54%), this was reversed until the 5<sup>th</sup> minute.

After birth, the newborns remained in rooming-in with their mothers both in the maternity ward, which was the minority, and in the inpatient ward for COVID-19-positive patients, which represented the majority of cases (78; 68.42%). It should be noted that all newborns of positive mothers were tested at birth and, in case of transfer to the Intermediate Care Unit (ICU) and Neonatal Intensive Care Unit (NICU), they remained in isolation until the negative result of the second test. Of the total NB, 60 (52.63%) had a negative result, 43 (37.72%) had no EPR test result, 11 (9.65%) did not perform the test and no NB had a positive test result.

### **DISCUSSION**

The profile of pregnant women affected by

COVID-19 hospitalized in the time frame of the study showed characteristics similar to other national and international studies. Regarding symptomatology, it was found that most women 50.41%) pregnant had (61;asymptomatic picture, differing from other where pregnant women were studies predominantly symptomatic and at higher risk of mortality<sup>(11)</sup>. Regarding this outcome, in this study there were 4 deaths (3.30%).

The predominant age of infected and hospitalized pregnant women was young women aged 20 to 30 years (65; 53.72%), similar to that reported by international<sup>(10,12)</sup> and national studies<sup>(8,13)</sup>. The prevalent race was white (93; 76.86%), which corroborates the findings of the Brazilian Ministry of Health<sup>(3)</sup>. On the other hand, in the southeastern region of Brazil, it was identified that most were brown women, in cases of mild or severe infection with occurrence of SARS<sup>(13)</sup>.

Most of the research participants had completed high school, related to what was found in other studies<sup>(13,14)</sup> and the highest prevalence was of women who called themselves housewives, which was also identified in Minas Gerais<sup>(13)</sup>.

In an evident warning sign about the quality of maternal health care, almost all pregnant women without prenatal information were identified in the information system of the hospital under study, since 86% of the participants had no record of this data, of the 13.22% records found, only 3.30% performed adequate follow-up during pregnancy, that is, with a minimum of six consultations, recommended by the state of Paraná and the Ministry of Health<sup>(15-16)</sup>. Therefore, there are two hypotheses, absence of correct registration about prenatal care or a weakness of local obstetric

care, which leads to losses in the monitoring of the dyad. In addition, the lack of resources to care for severe clinical conditions is mentioned at the national level during the pandemic period<sup>(17)</sup>.

It is also noteworthy that the flows of care to pregnant women were changed so that the health system covered the numerous cases of COVID-19<sup>(17,26-27,)</sup>, as well as at the local and regional level, based on information collected at the study hospital.

According to the literature, maternal deaths resulting from COVID-19 were concentrated in the least developed, low- and middle-income countries, such as Brazil. This situation results from the difficulty of access to health services and more complex care, and it is clear that the chance of being admitted to an intensive care unit is five times higher for pregnant women than for non-pregnant women<sup>(18)</sup>.

The severity of the clinical condition of the pregnant woman contributes to the negative evolution<sup>(19)</sup>, in this study consisting of the hospitalization of 12 women in the intensive care unit and 4 deaths. This corroborates a study conducted in Turkey, with a number of participants similar to the present study, in which eight women needed to be admitted to the ICU and six of them died<sup>(20)</sup>. Pregnant women with comorbidities are more likely to worsen the condition resulting from SARS-CoV-2 infection. In the research group, most pregnant women (75; 55.56%) did not present comorbidities associated with infection. However, those with comorbidities were those described in the literature complicating the infectious as condition, being Gestational Diabetes Mellitus (GDM), Hypertensive Syndromes in Pregnancy (HSP), hypothyroidism<sup>(5, 21)</sup>, which is similar to that found in the study where 30 pregnant women (22.23%) had these predictors of a worsening of the condition.

Although a minority of pregnant women presented HSP (7; 5.19%), it should be noted that COVID-19, together with hypertensive changes, increase the risk of unfavorable outcomes, such as increased risk for preeclampsia and HELLP syndrome, as well as preterm birth, small NB for gestational age; conditions identified, including for asymptomatic pregnant women<sup>(20,23-24)</sup>. Despite

the absence of studies on the COVID-19 vaccine in pregnant women, its benefit in relation to the possible outcomes of the disease justifies its recommendation by the Ministry of Health and international bodies<sup>(27,21)</sup>. Immunization has its importance validated due to the lower probability of vaccinated pregnant women being diagnosed with COVID-19 before delivery<sup>(22)</sup>.

In the group of infected pregnant women, the prevalent birth of NB at 39 weeks of gestational age was recorded. However, the increase in premature births (25; 21.92%) due to infection in this group of women is justified by the literature, as well as the higher frequency of births below 2,500 grams (24; 21.05%)<sup>(5-6,10-11,22,24)</sup>. Preterm birth in 83% of occurrences is indicated due to worsening of the maternal clinical condition or other conditions such as preeclampsia, fetal distress and intrauterine growth retardation, as hypoxia due to SARS can compromise fetal well-being<sup>(25)</sup>.

The NB of mothers affected by COVID-19 mostly showed good vitality at birth. Contrary to the Chinese study<sup>(23)</sup>, which identified lower APGAR values with a score of 3 and 4, respectively, at the 1<sup>st</sup> and 5<sup>th</sup> minute, requiring resuscitation, and presented a positive test for the disease; a similar situation was described in Turkey<sup>(20)</sup>, in which infected NB presented APGAR at the 1<sup>st</sup> minute of 2 and at the 5<sup>th</sup> minute of 6. Although the literature indicates that NB of infected mothers are more likely to remain in the NICU<sup>(6)</sup>, this was not identified in this study.

The predominant route of birth was cesarean sections, confirming the prevalence of this route of birth in Brazil and other countries during the pandemic<sup>(6,8,22,26)</sup>. It is noteworthy, however, that a positive diagnosis for COVID-19 is not indicative of cesarean section<sup>(27)</sup>. There were three (2.56%) fetal deaths (FD) of COVID-19-positive mothers, similar to the finding that the birth of stillbirths is twice as high when women are infected with SARS-CoV-2<sup>(22)</sup>. Studies discuss fetal suffering in infected pregnant women, demonstrating the existence of the link between COVID-19 and the consequences for the offspring<sup>(5,11,25)</sup>.

It is pointed out as limitations of the study, being retrograde to the electronic medical records of pregnant women, with scarcity of information, in addition to incorrect or nonexistent feeding. In addition, there is a gap in knowledge about the consequences for NB of infected mothers regarding child neurodevelopment, since, according to the on maternal infection, consequences for children can be seen in the long term<sup>(11, 23),</sup> thus, it is suggested to carry out studies that seek the evaluation and follow-up of these children born to infected mothers during the pandemic.

### **CONCLUSION**

The pregnant women affected by COVID-19, in the hospital studied, were mostly Brazilian, white, and young, with complete high school, with an employment relationship in the industry and commerce sectors and in a stable union. It is noteworthy the lack of information about prenatal care. As for infection, it predominantly occurred in the third trimester. Most of them

were asymptomatic, and when they had symptoms the most frequent was cough. Most had no comorbidities, and had already received at least one dose of the COVID-19 vaccine by the time of hospitalization. There were four maternal deaths that were admitted to the hospital and six throughout the municipality.

The newborns had an Apgar score above 7, with a gestational age of 39 weeks, without the need for admission to a more complex unit. It is noteworthy that no NB tested positive for COVID-19. The similar relationship between the occurrence of preterm births with low birth weight and the occurrence of fetal deaths is emphasized. The epidemiological profile of pregnant women identified factors that denote greater attention in their health care. It is noteworthy the need for further studies on SARS-CoV-2 infection, the epidemiological scenario of the infection and the long-term consequences for children generated by mothers infected by this disease.

# PERFIL EPIDEMIOLÓGICO DE GESTANTES COM COVID-19 E DE SEUS RECÉMNASCIDOS: RECORTE TEMPORAL

### **RESUMO**

**Objetivo:** descrever o perfil epidemiológico de gestantes acometidas pela COVID-19 e de seus recém-nascidos em um hospital escola do oeste do Paraná. **Metodologia:** pesquisa documental, retrospectiva, de desenho transversal, com consulta a documentos institucionais, sistemas de informação em saúde de notificação e leitura na íntegra de prontuário eletrônico das gestantes internadas em um hospital escola. O período investigado foi de março de 2020 a abril de 2022, compondo uma amostra de 121 gestantes internadas devido à COVID-19 e 114 recém-nascidos, sendo analisados por meio de estatística descritiva. **Resultados:** as gestantes infectadas pelo SARS-CoV-2 não tiveram nenhum recém-nascido infectado ao nascer, 13 (10,74%) gestantes necessitaram de internação na Unidade de Terapia Intensiva, ocorreram quatro (3,30%) óbitos maternos e três (2,63%) óbitos fetais. Os nascimentos foram via cesariana (n=61; 50,41%) em sua maioria, com baixo peso ao nascer (n=24; 21,05%) e a prematuridade (n=25; 21,92%), e apresentaram maiores taxas comparadas às anteriores a pandemia. **Conclusão:** o cenário epidemiológico apresentado foi semelhante ao exposto pela literatura, verificando a não contaminação vertical. Como desfechos maternos e neonatais, evidenciou-se maior ocorrência de cesarianas, óbitos maternos, prematuridade e baixo peso ao nascer entre as infectadas.

Palavras-chave: COVID-19. Gravidez. Perfil de saúde. Recém-nascido.

## PERFIL EPIDEMIOLÓGICO DE EMBARAZADAS CON COVID-19 Y DE SUS RECIÉN NACIDOS: RECORTE TEMPORAL

### **RESUMEN**

**Objetivo**: describir el perfil epidemiológico de embarazadas afectadas por COVID-19 y de sus recién nacidos en un hospital escolar del oeste de Paraná. **Metodología**: investigación documental, retrospectiva, de diseño transversal, con consulta a documentos institucionales, sistemas de información en salud de notificación y lectura íntegramente del registro médico electrónico de las gestantes internadas en un hospital escuela. El período investigado fue de marzo de 2020 a abril de 2022, componiendo una muestra de 121 embarazadas internadas debido a COVID-19 y 114 recién nacidos, que fueron analizados por medio de estadística descriptiva. **Resultados**: las gestantes infectadas por el SARS-CoV-2 no tuvieron ningún recién nacido infectado al nacer, 13 (10,74%) embarazadas necesitaron de internación en la Unidad de Cuidados Intensivos, ocurrieron cuatro (3,30%) muertes maternas y tres (2,63%) muertes fetales. Los nacimientos fueron vía cesárea (n=61; 50,41%) en

su mayoría, con bajo peso al nacer (n=24; 21,05%) y la prematuridad (n=25; 21,92%), y presentaron mayores tasas comparadas a las anteriores a la pandemia. **Conclusión**: la situación epidemiológica presentada era similar a la expuesta en la literatura y se comprobó la ausencia de contaminación vertical. Como desenlaces maternos y neonatales, se evidenció, entre las infectadas, mayor incidencia de cesáreas, óbitos maternos, prematuridad y bajo peso al nacer.

Palabras clave: COVID-19. Embarazo. Perfil de salud. Recién nacido.

## REFERÊNCIAS

- 2. Wu F, Zhao S, Yu B, Chen Y, Wang W, Song Z, et al. A new coronavirus associated with human respiratory disease in China. Nature 2020; 580(7803):e7. DOI: https://doi.org/10.1038/s41586-020-2008-3
- 3. Brasil. Ministério da Saúde. Boletim Epidemiológico Especial Doença pelo Coronavírus (COVID-19) Número 138. Semana epidemiológica 44 [IOnline]. Brasília: Ministério da Saúde; 2022. Available from: https://www.gov.br/saude/pt-br/centrais-deconteudo/publicacoes/boletims/epidemiologicos/covid-19/2022/boletim-epidemiologico-no-138-boletim-coecoronavirus.pdf
- 4. Montenegro CAB, Rezende Filho J. Rezende. Obstetrícia. 14 ed. Rio de Janeiro: Guanabara Koogan; 2022.
- 5. Villar J, Ariff S, Gunier RB, Thiruvengadam R, Rauch S, Kholin A, et al. Maternal and neonatal morbidity and mortality among pregnant women with and without COVID-19 Infection. Jama Pediatrics. 2021 Aug; 175(8):817-826. DOI: https://10.1001/jamapediatrics.2021.1050
- 6. Zhu H, Wang L, Fang C, Peng S, Zhang L, Chang G, et al. Clinical analysis of 10 neonates born to mothers with 2019-nCoV pneumonia. Transl Pediatr. 2020 Feb; 9(1):51-60. DOI: 10.21037/tp.2020.02.06
- 7. Paraná. Secretaria de Saúde do Paraná. COSEMS. Mortalidade materna, 49 slides. Curitiba: Secretaria de Saúde do Paraná; 2022 [Online]. Available from: https://cosemspr.org.br/wpcontent/uploads/2022/05/120-20Maria20Goretti20-
- 20ApresentacCCA7aCC83o20Mortalidade20Materna-20MI-DBF2012.05.ppt
- 8. Amorin RBN, Vale ADJM, Reis MA, Macedo JPR, Pereira DA. et al. Estudo descritivo das características de gestantes hospitalizadas com Covid 19 no Brasil no período de março de 2020 a outubro de 2021. Brazilian Journal of Health Review. 2022 Mar/Apr; 5(2):7661-7671. DOI:10.34119/bjhrv5n2-322
- 9. Silva RSH, Siqueira IC. Martins LC, Vasconcelos GA, Barreto DPS, Oliveira PS. et al. Evolução clínica e epidemiológica de gestantes hospitalizadas com COVID-19 em Salvador (BA). Braz J Infect Dis. 2022 Sep; 26: 102590. DOI: 10.1016/j.bjid.2022.102590
- 10. Cavalcante MB, Cavalcante CTMB, Sarno M, Barini R, Kwak-Kim J. Maternal immune responses, and obstetrical outcomes of pregnant women with COVID-19 and possible health risks of offspring. J Reprod Immunol. 2021 Feb; 143:103250. DOI: https://10.1016/j.jri.2020.103250
- 11. Chen H, Guo J, Wang C, Luo F, Yu X, Zhan P. et al. Clinical characteristics, and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: a retrospective review of medical records. Lancet. 2020; 395(10226):809-815. DOI: https://doi.org/10.1016/S0140-6736(20)30360-3
- 12. Godoi APN, Bernardes GCS, Almeida NA, Melo SN, Belo VS, Nogueira LS, Pinheiro MB.

Severe Acute Respiratory Syndrome by COVID-19 in pregnant and postpartum Women. Rev. Bras. Saúde Mater. Infant. 2021; 21(2):461-469. DOI: https://doi.org/10.1590/1806-

#### 9304202100S200008

- 13. Barbosa Filho, MC, Lopes, FNB, Viana, JFS, Ferreira, BO. Severe acute respiratory syndrome by covid-19: epidemiological profile in pregnant and postpartum women in the state of Amazonas. Medicina (Ribeirão Preto) Universidade de São Paulo. 2022; 55(2):1-10. DOI: https://doi.org/10.11606/issn.2176-7262.rmrp.2022.194706
- 14. Brasil. Ministério da Saúde. Atenção ao pré-natal de baixo risco. Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Brasília: Ministério da Saúde; 2012. Available from: https://bvsms.saude.gov.br/bvs/publicacoes/cadernos\_atencao\_basica\_32\_prenatal.pdf
- 15. Paraná. Secretaria de Estado da Saúde. Divisão de Atenção à Saúde da Mulher. Linha Guia Atenção Materno Infantil: Gestação. Linha de Cuidado Materno Infantil 8 ed. Curitiba, 2022. Available from:
- $https://www.saude.pr.gov.br/sites/default/arquivos\_restritos/files/documento/2022-03/linha\_guia\_mi-\_gestacao\_8a\_ed\_em\_28.03.22.pdf$
- 16. Takemoto MLS, Menezes MO, Andreucci CB, Nakamura-Pereira M, Amorim MMR, Katz L. et al. The tragedy of COVID-19 in Brazil: 124 maternal deaths and couting. Int. J Gynaecol Obstet. 2020; 151(1):154-156. DOI: https://10.1002/ijgo.13300
- 17. Bonatti AT, Miller N, Carvalhaes MABL, Jensen R, Parada CMGL. Factors associated with death among postpartum women with COVID-19: a Brazilian population-based study. Rev. Latino-Am. Enfermagem. 2021; 29:e3507. DOI: http://dx.doi.org/10.1590/1518-8345.5446.3507
- 18. Gomez UT, Francisco RPV, Baptista FS, Gibelli MABC, Ibidi SM, Carvalho WB. et al. Impact of SARS-CoV-2 on pregnancy and neonatal outcomes: an open prospective study of pregnant women in Brazil. Clinics. 2022 Jun; 27(77):100073. DOI: https://10.1016/j.clinsp.2022.100073
- 19. Oncel MY, Akin IM, Kanburoglu MK, Tayman C, Coskun S, Narter F. et al. A multicenter study on epidemiological and clinical characteristics of 125 newborns born to women infected with COVID-19 by Turkish Neonatal Society. Eur J Pediatri. 2021; 180(3):733-742. DOI: https://10.1007/s00431-020-03767-5
- 20. Jamieson DJ, Rasmussen SA. An update on COVID-19 and pregnancy. Am J Obstet Gynecol. 2022; 226(2):177-186. DOI: https://10.1016/j.ajog.2021.08.054
- 21. Conde-Agudelo A, Romero R. SARS-CoV-2 infection during pregnancy and risk of preeclampsia: a systematic review and meta-analysis. Am J Obstet Gynecol. 2022; 226(1):68-89. DOI: https://10.1016/j.ajog.2021.07.009
- 22. Shook LL, Sullivan EL, Lo JO, Perlis RH, Edlow AG. COVID-19 in pregnancy: implications for fetal brain development. Trends Mol Med. 2022 Apr; 28(4):319-330. DOI: https://10.1016/j.molmed.2022.02.004
- 23. Zeng L, Xia S, Yuan W, Yan K, Xiao F, Shao J, Zhou, W. Neonatal early-onset infection with SARS-CoV-2 in 33 neonates born to mothers with COVID-19 in Wuhan, China. Jama Pediatri. 2020; 174(7):722-725. DOI: https://10.1001/jamapediatrics.2020.0878
- 24. Healy CM. Covid-19 in pregnant women and their newborn infant. JAMA Pediatrics. 2021; 781-783. DOI:10.1001/jamapediatrics.2021.1046
- 25. Patuzzi GC, Schuster RV, Ritter SK, Neutzling AL, Luz CB, Canassa CCT. Flows of care in an obstetric center in the face of the covid-19 pandemic: experience report. Cienc Cuid Saúde. 2021; 20:e56189. DOI 10.4025/cienccuidsaude.v20i0.56189

26. Brasil. Ministério da Saúde. Manual de recomendações para a assistência à gestante e puérpera frente à pandemia de Covid-19. 2. ed. Brasília: Ministério da Saúde; 2021. Available from:

 $https://bvsms.saude.gov.br/bvs/publicacoes/manual\_assistencia\_gest \\ ante\_puerpera\_covid-19\_2ed.pdf$ 

Corresponding author: Claudia Silveira Viera. Rua Universitária 1669. Cascavel, Paraná. 85819-110. E-mail:

clausveira@gmail.com

**Submitted:** 14/04/2023 **Accepted:** 05/11/2023

## FINACIAL SUPPORT

PPSUS Edição 2020/2021/Fundação Araucária.