

## **Pregnancy's health in the context of emergency in public health: reflections of the COVID-19 pandemic**

Saúde da gestante no contexto de emergência em saúde pública: reflexos da pandemia da COVID-19

La salud del embarazo en el contexto de emergencia en salud pública: reflejos de la pandemia del COVID-19

Received: 03/04/2022 | Reviewed: 03/12/2022 | Accept: 03/20/2022 | Published: 03/27/2022

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### **Abstract**

This is a study of theoretical reflection that aimed to present the repercussions of the Coronavirus on the health of pregnant women and discuss the repercussions of the COVID-19 pandemic on health care for this population, based on the recommendations proposed by the World Health Organization. Therefore, it presents a systematic reflection and discussion around two main axes: 1) Pregnant women and COVID-19” and 2) Attention to the health of pregnant women in the pandemic. Understanding the essentiality of planning and organizing health services at the various levels of health care is of paramount importance for coping with the pandemic and for promoting comprehensive care for pregnant women, especially in health emergency contexts.

**Keywords:** Pregnancy; Public health; Pandemics; Coronavirus infections.

### **Resumo**

Trata-se de um estudo de reflexão teórica que objetivou apresentar as repercussões do Coronavírus na saúde da gestante e discutir sobre as repercussões da pandemia da COVID-19 no cuidado em saúde à essa população, fundamentado nas recomendações propostas pela Organização Mundial da Saúde. Para tanto, apresenta uma reflexão sistematizada e discussão em torno de dois eixos principais: 1) Gestantes e a COVID-19” e 2) Atenção à saúde da gestante na pandemia. Compreender a essencialidade do planejamento e a organização dos serviços de saúde nos diversos níveis de atenção em saúde é de suma importância para o enfrentamento da pandemia e para a promoção do cuidado integral à gestante, principalmente em contextos de emergência sanitária.

**Palavras-chave:** Gravidez; Saúde pública; Pandemias; Infecções por coronavírus.

## Resumen

Se trata de un estudio de reflexión teórica que tuvo como objetivo presentar las repercusiones del Coronavirus en la salud de las gestantes y discutir las repercusiones de la pandemia de la COVID-19 en la atención a la salud de esta población, a partir de las recomendaciones propuestas por la Organización Mundial de la Salud. Por ello, presenta una reflexión y discusión sistemática en torno a dos ejes principales: 1) Las mujeres embarazadas y el COVID-19” y 2) La atención a la salud de las mujeres embarazadas en la pandemia. Comprender la esencialidad de la planificación y organización de los servicios de salud en los distintos niveles de atención en salud es de suma importancia para el enfrentamiento de la pandemia y para promover la atención integral a las mujeres embarazadas, especialmente en contextos de emergencia sanitaria.

**Palabras clave:** Embarazo; Salud pública; Pandemias; Infecciones por coronavirus.

## 1. Introduction

After the first reports of idiopathic pneumonia in Wuhan, China, in December 2019, caused by the Coronavirus, the world went into a state of alert, leading the World Health Organization (WHO) to declare COVID-19 (a disease caused by the new Coronavirus) as a pandemic in March 2020 (World Health Organization, 2020a).

COVID-19 is a disease caused by the SARS-CoV-2 infection of the newly emerged Coronavirus and with high rates of contamination (Wu & McGoogan, 2020). The respiratory tract and lungs are the most affected by the virus, which causes a new type of pneumonia (Zhou et al., 2020). Severe cases can progress to Acute Respiratory Distress Syndrome (ARDS), septic shock, and Multiple Organ Dysfunction Syndrome (MODS) (Guan et al., 2020).

The most common symptoms of COVID-19 are fever, dry cough, runny nose, sore throat, and shortness of breath, which can appear between 2 and 14 days after infection. However, the clinical picture varies from asymptomatic infections to severe respiratory conditions (Guan et al., 2020).

The COVID-19 pandemic has a direct and indirect impact on vulnerable populations, including pregnant and postpartum women (Brasil, 2020). The gestational period is characterized by hormonal changes, decreased lung capacity due to the gravid uterus, and a suppressed immune system among other factors, which may be more vulnerable to viral infections and their complications. Therefore, COVID-19 can cause serious consequences for pregnant women. (Masjoudi et al., 2020; Panagiotakopoulos et al., 2020; Diriba et al., 2020).

In other previous epidemics caused by the Coronavirus, such as Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS), pregnant women suffered vertical complications, which have been documented. Due to this, the concern with this population has been growing with each new evolution of the disease (Carvalho et al., 2021).

Although the symptoms were discovered during the pandemic, the clinical picture of pregnant women with COVID-19, according to studies, signs, and symptoms had a standard appearance such as cough, fever, fatigue, abdominal pain, diarrhea, and pneumonia, causing consequences for the health of the woman and the fetus (Zimmermann & Curtis, 2020).

Studies carried out since the beginning of the COVID-19 pandemic prove the vulnerability of pregnant women in this context, with high numbers of hospitalizations in intensive care units, damage to women's health, fetal distress, and high maternal and perinatal mortality rates (Diriba et al., 2020; Zimmermann & Curtis, 2020; Kadir et al., 2020).

Research has shown that infection with the Coronavirus causes SARS (Severe Acute Respiratory Syndrome) in 1% of the population of pregnant and postpartum women, which reflects on implications that increase the number of ICU admissions, need for ventilatory support, and deaths. As a result, care and vaccination guidelines were implemented for the promotion and care of the health of these women by national health agencies (Rodrigues et al., 2021).

Therefore, we need to take a careful and careful look at the health of the pregnant woman in the current situation of health emergency triggered by the pandemic of the new Coronavirus. Thus, understanding the reflexes of the COVID-19 pandemic on the health of pregnant women is of paramount importance to contribute to actions and strategies to face it and to qualify the promotion of women's health care.

Due to the alarming data on maternal mortality related to COVID-19 among pregnant women, the serious repercussions on health care in this population, and the need to develop strategies to cope with it, we justify to carry out this study, which aimed to present the repercussions of the Coronavirus in the health of pregnant women and discuss the effects of the COVID-19 pandemic on health care for this population.

## **2. Methodology**

This is a study of theoretical reflection with a methodological approach based on health care for pregnant women during the COVID-19 pandemic, recommended by the Ministry of Health of Brazil (2021a) and the WHO (World Health Organization, 2020b). We also considered the scientific literature and guidelines from national and international institutions on the subject to build theoretical knowledge and understand the relationship between pregnancy and COVID-19.

From this, we elaborated two main thematic axes: 1) Pregnant women and COVID-19 and 2) Attention to the health of pregnant women in the COVID-19 pandemic.

## **3. Results and Discussion**

We show the thematic axes below:

### **1) Pregnant women and COVID-19**

Studies indicate that the most frequent symptoms in pregnant women with COVID-19 are pneumonia, fever, cough, fatigue, and myalgia, in addition to abdominal pain and diarrhea. The most common associated comorbidities are hypothyroidism, hypertension, and gestational diabetes (Zimmermann & Curtis, 2020).

Among the consequences, we found higher rates of cesarean section, premature birth, hospitalization in intensive care, multiple organ failure, preeclampsia, HELLP syndrome, coagulopathies, thyroid disorders, abortion, fetal distress, low fetal weight, neonatal pneumonia, and maternal and perinatal death. Therefore, we concluded that pregnant women infected with the new Coronavirus have an increased risk of worse outcomes than the general population (Diriba et al., 2020; Zimmermann & Curtis, 2020; Kadir et al., 2020).

Other problems observed are the decrease in the frequency and quality of sexual activity (Mirzaei et al., 2021), difficulty in accessing healthy foods due to the closing of establishments, restriction of access to leisure areas that lead to a decrease in the practice of physical activities, directly impacting the quality of life of pregnant women (Liet et al., 2021; Gildner et al., 2021).

Studies also point to psychological aspects triggered by the pandemic in pregnant women, where the lack of contact with family and friends, combined with the fear of illness and death of loved ones and of contracting the new disease and transmitting it to the fetus when going to hospitals and health services for prenatal care, can lead to stressful events during pregnancy and increase concerns during this period, culminating in the development of sleep disorders, stress, irritability, anxiety, and depression in pregnant women, with short and long-term consequences. (Mirzaei et al., 2021; Gildner et al., 2021; Gur et al., 2021; Salehi et al., 2020).

The high risk of maternal morbidity and mortality is also evident in pregnant and postpartum women infected with

COVID-19 who progress to a severe condition associated with comorbidities when they are more likely to have an emergency cesarean section or premature labor (Liet al., 2020). International studies carried out with pregnant women at the beginning of the pandemic showed high outcomes of preterm birth and cesarean section. They concluded that they are susceptible to infection and that during the disease there may be an increased risk to the health of the pregnant woman and fetus. (Zhou et al., 2020; Li et al., 2020; Chen et al., 2020).

Brazil has alarming maternal mortality data, with several deaths three times higher than the number of maternal deaths reported worldwide. According to data from the Brazilian Obstetrics Observatory Covid-19 (*Observatório Obstétrico Brasileiro Covid-19* - OOBC-19), there were 460 deaths in 2020 due to the disease and by September 2021, there were 1428 deaths of pregnant and postpartum women (Rodrigues et al., 2021).

This mortality rate may be related to several factors, with emphasis on chronic health problems, precarious prenatal care, insufficient resources for urgent and emergency care, racial disparity and access to maternity services, and the barriers found due to the pandemic (Mendonça & Ribeiro Filho, 2021).

We also highlight the psychic repercussions, since, during pregnancy, women's sensitivity is commonly exacerbated, making them susceptible to various emotional disorders. The COVID-19 pandemic can be a triggering stressor event, raising great doubts and tensions related to motherhood, puerperium, and breastfeeding in this context of a health emergency.

Due to these repercussions, in April 2020, pregnant women were included as a risk group for diseases related to the infection of the new Coronavirus, along with obesity and chronic diseases. The inclusion of pregnant women in the risk group was based on previous knowledge about infectious diseases that appeared during the gestational period, such as the case of the old Coronavirus and the infection caused by H1N1 (Brasil, 2020b).

## **2) Attention to the health of pregnant women in the COVID-19 pandemic**

With the increase of COVID-19 cases in Brazil and the world, there was a significant increase of infected pregnant women who required hospitalization or who had some condition related to infection by SARS-Cov-2.

We observed maternal deaths related to COVID-19 in a greater proportion in low and middle-income countries, showing chronic problems in women's health care, and current problems, reflections of this public health emergency triggered in care. Scholars state that in every ten deaths of pregnant women with COVID-19 in the world, eight are of Brazilian pregnant women (Ellington et al., 2020).

Given this context and based on the recommendation to include pregnant women in the risk group, specific measures were adopted throughout the country to reduce the chances of contagion and maternal-fetal mortality.

Thus, care for pregnant and postpartum women was intensified and reconfigured (Albuquerque, Leite & Sousa, 2020) with necessary changes and reorganization in health services for logistics, flow, and health care (Estrela, Silva, Cruz & Gomes, 2020).

The reorganization of health care and assistance was guided by the document Manual of Recommendations for Assistance to Pregnant and Puerperal Women during the Covid-19 Pandemic, presenting strategies for consultation and examination routines (Rodrigues et al., 2021).

Considering ways to adapt the clinical practice to protect the population and health professionals, one of the measures adopted by health systems was the restriction of consultations and elective procedures. However, birth cannot be considered as elective. Thus, prenatal care and assistance during labor and delivery were readjusted, maintaining care for pregnant women with a minimum of six consultations, alternating between face-to-face and remote consultations, when possible; and restricting tests to essential ones (Brasil, 2021a).

Through planning, sanitary measures, and equity policies, changes must be maintained and redefined in these services,

according to the particularities of each region, aiming to reduce the exposure of infected patients to health professionals and other patients, without affecting maternal and perinatal outcomes.

Also, in January 2021, vaccination against COVID-19 began in Brazilian territory, and although pregnant and postpartum women were already considered a risk group, the inclusion of this group as priorities in the vaccination schedule came only in March 2021.

Initially, only pregnant women with comorbidities could be vaccinated, and pregnant women who underwent solid organ transplants, who have respiratory problems and/or chronic kidney disease, have obesity, systemic arterial hypertension, diabetes mellitus, among others were considered a vulnerable group (Nakamura-Pereira et al., 2020).

In July 2021, the Ministry of Health expanded vaccination to pregnant and postpartum women over 18 years old without comorbidity with the Pfizer® (ComiRNAty) and Sinovac/Butantan® (CoronaVac®) vaccines. Vaccination with AstraZeneca® and Jansen® are contraindicated for pregnant women due to the technology, which uses the non-replicating viral vector method (adenovirus) to express a Spike glycoprotein of the coronavirus, stimulating the manufacture of antibodies that fight the disease (Oliveira & Silveira, 2021; Lima et al., 2021; Brazil, 2021b).

This recommendation was made after notification of a Severe Adverse Event of Thrombosis Syndrome with Thrombocytopenia (TST), which is extremely rare and has a possible causal association with non-replicating viral vector vaccines. Therefore, the Ministry of Health, through TECHNICAL NOTE No. 2/2021, recommended the vaccination of pregnant, postpartum, and lactating women as a priority group against COVID-19, which should be vaccinated only with immunizations that do not contain a viral vector and require medical recommendation (Brasil, 2021b; Brasil, 2021c).

Specifically for breastfeeding, some researchers point to breastfeeding as a protective factor for the newborn against COVID-19, since the breast milk of mothers infected with the new Coronavirus conferred an *in vitro* immune response to the disease, due to a large number of immunoglobulins G, the antibody responsible for the response to viruses and bacteria (Fox et al., 2020).

This finding reaffirms breastfeeding as a safe and necessary action, which supports maintaining the recommendation of breastfeeding in the current context, as recommended by the WHO (World Health Organization, 2020b).

In addition to the benefits of breastfeeding, recent studies report that vaccination against COVID-19 during pregnancy and puerperium induces a very effective immune response, passively transmitting COVID-19 antibodies in breast milk and blood umbilical cord (Collier et al., 2021).

The reflexes of the COVID-19 pandemic also permeate the health services, which suffered the effects through an organizational readaptation necessary for the service, with the creation of field hospitals and specific sectors, reorganization of the flow of care, and reinforcing the use of personal protective equipment (PPE) (Farias et al., 2020), which includes services for pregnant and postpartum women.

Such reorganization covers human resources and maintenance of care (Ventura-Silva et al., 2020), which encompasses the demands related to pregnant women who use the health service and pregnant women who work at the health institution, who must be removed to perform remote work or be dismissed from the workplace, with guaranteed remuneration, when the activities are not compatible with the home office modality, according to Law 14.151, of May 12, 2021.

In this context, the reflexes of the COVID-19 pandemic also had direct repercussions on health professionals who assist pregnant women, both in their physical and mental health (Teixeira et al., 2020; Helioterio et al., 2020).

This reality shows that to change the scenario of deaths among pregnant women in Brazil, the planning and organization of health services at the different levels of health care becomes essential for the care of pregnant women within their specific needs.

Finally, measures such as the availability of complete vaccination for all pregnant women, offering tests for screening

and early detection of infection by the virus, encouraging the adoption of preventive measures such as the use of adequate masks, removal from work activities that may expose pregnant women at risk of infection and adequate prenatal care can reduce the risks of exposure of this group to infection, illness, and complications caused by the new coronavirus.

#### 4. Conclusion

Pregnancy is a delicate period in which the woman's body undergoes several changes, which in most cases, evolve in a physiological way and without complications for the general state of their health.

Understanding the relationship between pregnancy and COVID-19 and how its consequences can contribute to the reduction of maternal morbidity and mortality and the qualification of health care for this population encourages reflection on the practices of health professionals and their work process, promoting strategies to face the pandemic, qualifying care for pregnant women and guaranteeing their health rights and those of their children.

It also enables to rethink professional training to meet the needs of women, especially pregnant women, and their families in the context of a health emergency, safeguarding the premises of continuous, comprehensive, and individualized care.

These reflections contribute to future studies, highlighting the need for a comprehensive approach that considers the health of pregnant women and the pandemic in the different realities of a continental country like Brazil, given its social, demographic, and economic differences.

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