

MATERNAL DEATHS AS A CHALLENGE FOR OBSTETRIC CARE IN TIMES OF COVID-19 IN BRAZIL

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Abstract

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RESEARCH LETTER

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MATERNAL DEATHS AND COVID IN BRAZIL

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Disclosure of Interests

The author declares that they have no competing interests.

Contribution to Authorship

RMG analyzed the data, wrote up the manuscript and edited the manuscript.

Details of Ethics Approval

Data used are based on routinely collected de-identified administrative data, as regulated by Brazilian law.

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Data Availability Statement

We used information from the Influenza Epidemiological Surveillance Information System (SIVEP-Gripe). The data are public and do not have identification of hospitalized patients. We synthesized data from 2020 to 2022 into a single database. The original data can be found at <https://opendatasus.saude.gov.br/organization/ministerio-da-saude>

Consent for Publication

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Coronavirus pandemic has brought to light health inequities in countries, especially concerning access to health services. Since the beginning of the Covid-19 pandemic, Brazil has been monitoring maternal mortality [1]. This concern was growing as Covid-19 started to present conditions that escaped the rule of a classic respiratory syndrome, but as a systemic condition. Aside the risk due to this biological plausibility, maternal mortality is strongly influenced by the access and availability of care resources for prenatal care, childbirth, and puerperium. The context of the pandemic creates additional barriers to prenatal care and childbirth, which directly impacts maternal mortality. Previously, Guimarães et al [2] tracked maternal deaths in Brazil in 2020. The authors used data from the Mortality Information System (SIM) for general and maternal deaths and the Influenza Epidemiological Surveillance System (SIVEP-Influenza) to estimate female deaths and mothers by COVID-19. The excess maternal mortality in 2020 in Brazil was 1.40 (95% CI 1.35-1.46). Even considering the excess mortality from COVID-19 for the female population of reproductive age, maternal mortality exceeded the expected number (MMR 1.14; 95% CI 1.13-1.15).

The diagnosis of maternal mortality in Brazil in 2020 was an essential baseline for better understanding the pandemic's effect on this critical indicator. Analysis of Covid-19 in Brazil also show that 2021 was much more challenging worldwide. Due to that, we calculated the number of expected maternal deaths for 2021 based on some counterfactual scenarios. We considered the trend of maternal deaths and total deaths between 2015 and 2019. With these data, we verified the temporal trend and estimated deaths. We calculated excess for maternal deaths and total deaths to correct the overall excess mortality estimates. In this way, we could compare the excess of maternal deaths and the excess of general deaths in the year 2021.

We described the scenarios in Table 1. In any scenario described, there will be excess maternal mortality in 2021 higher than general mortality. In the worst scenario, which is the comparison of maternal deaths in 2021 with what was expected, based on the trend between 2015 and 2019 (Scenario 1), we found that there were more than twice as many expected deaths (Excess = 2.05, 95% CI 1.67 – 2.44). We found a similar relationship when we calculated the excess based on 2020 mortality (Scenario 2). Even correcting the expected number for the overall death excess, adjusting it to the estimated number of deaths for the five-year period 2015-2019 (Scenario 3) or for 2020 (Scenario 4), when the pandemic was already underway, there was an excess of death. Finally, the contrast between the excess of maternal deaths and general deaths (Scenarios 5 and 6) confirms the hypothesis that pregnant and postpartum women were more penalized by the pandemic than the general population. In all of them, the estimates are statistically significant. In addition, the comparison with the excess of general mortality shows that pregnant and puerperal women were more penalized by Covid-19 than the general population. We emphasize that not all deaths were caused by Covid-19 directly. However, the pandemic severely limited women's access to adequate prenatal care, delivery, and puerperium.

Maternal mortality is notably affected by the quality of maternity care, which involves access, availability of necessary resources, and acceptable practices for prenatal care, childbirth, and the puerperium [3]. Countries with higher maternal mortality rates such as Brazil tend to have inadequate health services for pregnant and postpartum women [4]. This scenario becomes more evident when the health system is overloaded, as occurred in the first two years of the pandemic. Brazil had difficulty promoting prenatal care for pregnant women. In addition, she witnessed access barriers to childbirth, and faced a low supply of intensive care beds when there was a demand for them. In the current cooling-off phase of the pandemic, the Brazilian health system will need to turn its attention to recovering aspects of health that have been neglected during the last three years [5]. Maternal health, considered a priority of Brazilian health policies for at least 40 years, will demand special attention, under the risk of experiencing setbacks that jeopardize all the advances achieved by Brazil in this direction.

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Scenario	Counterfactual	Calculation	Excess Mortality (95% CI)
1	MM trend 2015-2019	$MM_{2021} / MM_{\text{trend 2015-2019}} = 110.07 / 53.63$	SMR = 2.05 (1.67 – 2.44)
2	MM trend 2015-2019 * adjustment for general mortality excess	$MM_{2021} / (53.63 * 1.334) = 110.07 / 71.52$	SMR = 1.54 (1.25 – 1.83)
3	2020 Maternal Mortality	$MM_{2021} / MM_{2020} = 110.07 / 71.94$	SMR = 1.53 (1.24 – 1.82)
4	2020 Maternal Mortality * adjustment for general mortality excess in 2021	$MM_{2021} / (MM_{2020} * 1.165) = 110.07 / 83.85$	SMR = 1.31 (1.07 – 1.56)
5	Comparison of excess mortality (General x Maternal), MM trend 2015-2019	$MM_{2021} / MM_{\text{trend 2015-2019}} \text{ GM}_{2021} / GM_{\text{trend 2015-2019}}$	SMR _{maternal} = 2.05 (1.67 – 2.44) SMR _{total} = 1.38 (1.29 – 1.48)
6	Comparison of excess mortality (General x Maternal), MM ₂₀₂₀	$MM_{2021} / MM_{2020} \text{ GM}_{2021} / GM_{2020}$	SMR _{maternal} = 1.53 (1.24 – 1.82) SMR _{total} = 1.17 (1.09 – 1.24)

Table1: Maternal Mortality Description and excess maternal mortality in different scenario. Brazil, 2021.

Legend: MM – Maternal Mortality; GM – General Mortality; 95% CI – 95% Confidence Interval.