MIDIRS Search Pack

Search Pack P200 (2023 onwards) Coronavirus (COVID-19) in pregnancy (2023 onwards)

Records on coronavirus (COVID-19) in pregnancy from 2023 onwards. For earlier records on this topic see P200 (2020), P200 (2021) and P200 (2022). Includes choice and accessibility of maternal health services. Does not include records on COVID-19 vaccination in pregnancy (P201); the effect of the pandemic on the mental health and wellbeing of women and their families during pregnancy, labour or postnatally (P202); COVID-19 in the neonate or infant feeding during the pandemic (PN193); the impact of COVID-19 on midwives (M95); COVID-19 in labour, birth and the impact on intrapartum care (L69) or the impact of COVID-19 on postnatal health and care (PN194).

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2025-04044

Neonatal pulmonary function tests in infants born to COVID-19 positive mothers. Ruch K, MacDonald KD, Parkhotyuk K, et al (2025), Journal of Perinatology 21 February 2025, online

Objective

To compare pulmonary function tests (PFTs), specifically passive respiratory system compliance (Crs), in infants of mothers positive for COVID-19 during pregnancy compared to PFTs from a historical cohort of matched, healthy reference infants.

Study design

A prospective cohort study of infants born to COVID-19 positive mothers. Crs was measured with the single breath occlusion technique. Historical cohort data was obtained from a pre-COVID-19 data repository. Respiratory questionnaires were done at 1-year postnatal age.

Results

Twenty-four PFTs in the COVID-19 cohort were compared with PFTs from 24 reference subjects. Infants of the COVID-19 positive mothers had a Crs of 3.57 ml/cmH2O versus 3.76 mL/cmH2O in the reference group ($p > 0.05$). The remaining PFT outcomes were comparable between groups. The COVID-19 infants reported more allergic symptoms and conditions through 1-year.

Conclusion

We found no difference in Crs in infants of mothers with COVID-19 during pregnancy compared to a historical pre-COVID reference cohort. (Author)

2025-03955

Adverse perinatal outcomes of unvaccinated pregnant women with respiratory symptoms during the COVID-19 pandemic: Evidence from a Brazilian multicenter study. Da-Costa-Santos J, Dos Reis Junior PS, Luz AG, et al (2025), International Journal of Gynecology & Obstetrics 14 February 2025, online

Objective

The current study aimed to describe risk factors for adverse perinatal outcomes (APOs) among pregnant women nonvaccinated for COVID-19 who had respiratory symptoms.

Methods

A nested case–control study was performed within the REBRACO (in Portuguese, the Brazilian Network of COVID-19 During Pregnancy) initiative. Women were recruited during pregnancy in 15 maternity hospitals in Brazil from February 1, 2020, to February 28, 2021, while seeking medical care for respiratory symptoms, and were followed up until childbirth regardless of confirmation of COVID-19. For this analysis, women were divided into two groups: (1) those with APOs, defined as the occurrence of fetal or neonatal death, preterm delivery, 5-min Apgar score <7, neonatal respiratory distress, neonatal mechanical ventilation, admission to the neonatal intensive care unit, small-for-gestational-age newborn, or any neonatal morbidity; and (2) those without APOs.

Results

The total number of women included in this analysis was 481, with 210 having APOs (43.7%). The characteristics independently associated with APOs were a composite outcome of severe acute respiratory syndrome, maternal admission at the intensive care unit, or maternal death (relative risk [RR], 3.30 [95% confidence interval (CI), 1.38–7.89]), living in the North and Northeastern regions of Brazil (RR, 3.09 [95% CI, 1.13–8.41]), and pre-eclampsia (RR,

2.77 [95% CI, 1.19–6.43]).

Conclusion
Severe maternal illness was strongly associated with APO regardless of COVID-19 confirmation. It is essential to provide sufficient and timely health care for women who have respiratory symptoms compatible with COVID-19. (Author)

2025-03870

Impact of Coronavirus Disease 2019 on the Incidence of No Prenatal Care. Tanamoto T, Hayasaka M, Robbins L, et al (2025), American Journal of Perinatology 6 March 2025, online

Objective
This study aimed to examine the impact of coronavirus disease 2019 (COVID-19) on the racial disparity in prenatal care utilization in the United States before and during the pandemic.

Study Design
This was a cross-sectional study using the National Vital Statistics Data from 2018 to 2022. Our focus was on low-risk individuals who delivered singleton pregnancies at term. The analysis was restricted to Black and White individuals to explore racial disparities. The study periods based on the last menstrual period (LMP) were prepandemic (March 2018–February 2020) and pandemic (March 2020–February 2022). The primary outcome was the rate of no prenatal care. We employed interrupted time series analysis, negative binomial regression models, adjusting for confounders, seasonality, and autocorrelation. We conducted postestimation analyses to calculate the counterfactual and actual incidences of outcomes for individuals with an LMP in March 2020 and February 2022. Difference-in-difference (DID) with 95% confidence intervals (95% CI) was estimated.

Results
The analysis included 3,511,813 individuals in the prepandemic period and 5,163,486 in the pandemic period. For individuals with LMP in March 2020, the actual incidences of no prenatal care per 100 births were 3.2 (95% CI: 3.0, 3.3) for Black individuals and 1.6 (95% CI: 1.2, 2.0) for White individuals. The difference between counterfactual and actual no prenatal care rates per 100 births for Black individuals was 0.4 (95% CI: 0.2, 0.5), indicating a significant increase in no prenatal care. Conversely, there was no significant difference for White individuals. DID analysis further demonstrated that this increase was greater in Black individuals compared with White individuals (DID per 100 births 0.3 [95% CI: 0.1, 0.5]). For individuals with LMP in February 2022, this difference in disparity further worsened (DID per 100 births 0.8 [95% CI: 0.4, 1.2]).

Conclusion
The COVID-19 pandemic increased the incidence of no prenatal care, which disproportionately affected Black individuals.

Key Points
The COVID-19 pandemic increased racial disparities.

The increase in no prenatal care among Black individuals.

White individuals are lower affected during this period. (Author)

2025-03842

Impact of Coronavirus Disease-2019 on Influenza and Tdap Vaccination Rates in Pregnant Patients. Njagu R, Freedy K, Brucker A, et al (2025), American Journal of Perinatology 7 February 2025, online

Objective Influenza and tetanus toxoid reduced diphtheria toxoid, and acellular pertussis (Tdap) are safe and

effective vaccines that are recommended in pregnancy. Despite this, significant vaccine hesitancy exists in pregnancy. However, impact of the coronavirus disease 2019 (COVID-19) pandemic on vaccine hesitancy is not well understood. Thus, we sought to describe impact of the COVID-19 pandemic on influenza and Tdap vaccination rates in pregnant patients.

Study Design Retrospective cohort study of patients delivering at single academic center from October 1, 2017 to August 31, 2021. Patients with missing vaccine data or delivering before 28 weeks (Tdap range) excluded. Patients delivering pre-COVID (October 1, 2017–August 31, 2019) compared with those delivering mid-COVID (October 1, 2020–August 31, 2021). Primary outcomes were vaccination rates for Tdap and influenza. Secondary outcome was rate of dual vaccination (receiving both) and variation by race/ethnicity. Chi-square tests and logistic regression were used to test for changes in vaccination rates.

Results Of 8,650 unique patient pregnancies, 5,925(68.5%) occurred pre-COVID. Median patient age (30 years) and gestational age at delivery (39 weeks) not clinically different between groups. Patients in mid-COVID group had lower numbers of government-assisted insurance (47.3%) and higher non-Hispanic Black compared with pre-COVID (31.5%). The rate of influenza vaccination decreased 8.2 percentage points from pre-COVID to mid-COVID (69.9 vs. 61.7%, $p < 0.001$). Tdap vaccination rates also decreased, although less-so (88.5 vs. 85.1%, $p < 0.001$). The rate of patients receiving both vaccines during pregnancy decreased from 66.0 to 58.4% ($p < 0.001$). Significant decreases in influenza vaccination rates mid-COVID versus pre-COVID was seen in all race–ethnicity groups except non-Hispanic White patients. For Tdap vaccinations, the effect of COVID on the odds of receiving Tdap did not differ across race–ethnicity groups.

Conclusion Rates of influenza, Tdap, and dual vaccination in pregnancy dropped significantly during the COVID-19 pandemic. For influenza, these were most pronounced in all race–ethnicities included with exception of non-Hispanic White. These data emphasize the importance of continued counseling and education on vaccinations in pregnancy and raise important questions regarding vaccine access and patient hesitancy during pandemic-mediated prenatal care.

Key Points

Influenza vaccination decreased with COVID-19.

Tdap vaccination decreased with COVID-19.

Decrease in flu vaccination in most race–ethnicity groups. (Author)

2025-03816

Carriers of a single cystic fibrosis transmembrane conductance regulator pathogenic variant and COVID-19 in pregnancy: A retrospective cohort study. Coté JJ, Doehrman P, Hedrick J, et al (2025), JOGC [Journal of Obstetrics and Gynaecology Canada] 10 March 2025, online

COVID-19 outcomes are worse in non-pregnant patients that are cystic fibrosis carriers; however, no studies have examined COVID-19 outcomes in pregnant patients that are cystic fibrosis carriers. We evaluated the cystic fibrosis carrier status of pregnant patients with COVID-19 in three geographical regions in the United States and compared outcomes between non-carriers and carriers. Out of 2430 pregnant patients with COVID-19, 229 had a cystic fibrosis screen. Pregnant cystic fibrosis carriers were associated with 47.90 times greater odds of hospitalization with COVID-19 than non-carriers. A larger cohort will be needed to draw strong conclusions. (Author)

2025-03813

Coronavirus Disease-2019 (COVID-19) and recurrent pregnancy loss management: Trends in clinical care from a tertiary centre. Balachandran S, Fayek B, Dobrer S, et al (2025), JOGC [Journal of Obstetrics and Gynaecology Canada] 14 March 2025, online

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Objectives
To investigate the impact of the COVID-19 pandemic on the care received by patients with recurrent pregnancy loss (RPL) in British Columbia, Canada. To explore the differential impact of socioeconomic status on healthcare utilization outcomes during the COVID-19 pandemic for patients with RPL.
Methods
This is a retrospective cohort study of patients from an RPL clinic located within a tertiary referral centre. Patients were divided into two groups based on the date of their initial visit to the clinic: 1) Pre-pandemic group (March 1, 2018, to February 28, 2020) and 2) Pandemic group (March 1, 2020, to February 28, 2022). Data were sourced from the RPL Clinic Database and Population Data BC. Outcomes assessed included visit trends, immediate pandemic impact, and socioeconomic effects.
Results
Demographic and clinical characteristics were not significantly different between study groups, except for increased referral rates to fertility clinics by the RPL clinic during the COVID-19 pandemic (4.90% vs. 9.50%). The mean number of visits per patient was comparable pre-pandemic (3.50 ± 2.00) and during the pandemic (3.40 ± 3.40). However, monthly initial visits were lower during the pandemic (12.50 ± 3.10) compared to pre-pandemic (14.40 ± 4.83). Telehealth was rare in the pre-pandemic period and increased dramatically during the pandemic, with virtual visits reaching up to 64% of total and 94% of initial visits. The pandemic's onset caused immediate drops in total (38.80%) and initial visits (51.70%). Healthcare utilization was higher among those with less material deprivation, while contrasting effects were observed in those with less social deprivation.
Conclusions
The COVID-19 pandemic impacted the care received by patients with RPL within a tertiary care centre. There was a shift in how services were provided to patients, uniquely impacting specific populations within the community.
(Author)

2025-03704

Patterns of physical activity, sedentary behavior, and sleep across pregnancy before and during two COVID pandemic years. Kozai AC, Jones MA, Borrowman JD, et al (2025), Midwifery vol 141, February 2025, 104268

Background
Physical activity is recommended during pregnancy, and high sedentary behavior and poor sleep may increase the risk of pregnancy complications. Activity patterns and sleep were negatively impacted by the COVID pandemic in many segments of the population, but the impact of the pandemic on pregnant people is understudied. We aimed to compare patterns of physical activity, sedentary time, and sleep during pregnancy between a pre-COVID and a COVID-era cohort.
Methods
Physical activity, sedentary time, and sleep in each trimester of pregnancy were compared between two parallel prospective observational cohorts using identical collection methods. Pre-COVID participants (n=111) were recruited in 2017–2019 and COVID-era participants (n=117) from 2021–2023. Physical activity and sedentary time were measured using the activPAL3 micro accelerometer, and sleep duration was self-reported. Between-cohort comparisons were conducted using linear regression for each behavior in each trimester. Within-COVID-era cohort linear regression analyses assessed whether activity patterns differed as pandemic-era restrictions were eased.
Results
Participant demographics were similar between cohorts except for self-reported income. Adjusted mean moderate-to-vigorous physical activity was 57–77 min/week higher in each trimester in pre-COVID compared to COVID-era participants ($p<0.001$); adjusted mean sedentary time was 0.77–1.13 hours/day lower in each trimester ($p<0.01$) and sleep duration was 0.8 hours/day lower in the third trimester in the pre-COVID compared to COVID-era cohort ($p<0.05$). Within the COVID-era cohort, no significant within-trimester differences were detected across the pandemic years.
Conclusions
Pregnant participants during the COVID pandemic were less active and more sedentary than their pre-pandemic

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counterparts, and this trend was still detected years after the pandemic began. A more sedentary lifestyle during pregnancy may have health implications, and prenatal care providers should help pregnant people identify strategies to adopt an active lifestyle in the context of pandemic-era barriers. (Author)

Full URL: https://doi.org/10.1016/j.midw.2024.104268

2025-03589

The impacts of the COVID-19 pandemic on the burden of maternal and neonatal disorders: A counterfactual modeling based on the global burden of disease study (2021). Qi J, Chen C, Zhang S, et al (2025), Social Science and Medicine vol 366, February 2025, 117667

Objectives

During the COVID-19 pandemic, global health systems faced unprecedented challenges, as well as in maternal and neonatal health, thus this study aims to clarify the impacts of COVID-19 on maternal and neonatal disorders (MNDs), regional variations, and the role of economic support.

Methods

We have developed a counterfactual model integrating Autoregressive Integrated Moving Average and Long Short-Term Memory models to forecast the burden of MNDs from 2020 To et al., 2021, which was compared with the actual burden to quantify the specific impact of the COVID-19 pandemic on MNDs.

Results

During the COVID-19 pandemic, the burden of MNDs surpassed predictions, particularly in Russia, where incidence was about 10.20% higher than expected. In Tokelau, neonatal disorders increased by 412.35% in DALYs. The incidence of maternal disorders in Russia has increased by 12.00%, with maternal abortion and miscarriage increasing by 23.08%. The incidence and prevalence of maternal hypertensive disorders, the incidence of hemolytic disease and other neonatal jaundice and neonatal preterm birth accelerated. In low and low-middle Socio-demographic Index countries, mortality rates from maternal abortion and miscarriage, maternal obstructed labor and uterine rupture, neonatal encephalopathy due to birth asphyxia and trauma significantly increased. Similarly, countries with a low economic support index saw higher burden for these conditions, with the burden decreasing as economic support improved.

Conclusion

The COVID-19 pandemic has disproportionately increased the burden of MNDs in countries with lower economic support, highlighting the critical need for strengthened global economic support, particularly in low- and middle-income countries. (Author)

2025-03424

COVID-19 prevention strategies and compliance among postnatal adolescent mothers with postnatal depression and generalised anxiety in rural Malawi: a cross-sectional study. Tembo CP, Burns S, Portsmouth L (2025), BMJ Open vol 15, no 2, February 2025, e093624

Objectives This study examines the relationship between adolescent mothers' mental health problems (postnatal depression and generalised anxiety) and adherence to COVID-19 public health prevention strategies in rural Malawi. It is part of a larger previously published study investigating the impact of social and cultural factors on the mental health in adolescent mothers.

Design A cross-sectional study was conducted from September 2021 to March 2022. The Edinburgh Postnatal Depression Scale (EPDS) and the Generalised Anxiety Disorder-7 (GAD-7) were used to identify the risk of postnatal depression (PND) and generalised anxiety disorder (GAD), respectively. Participants also responded to questions about their perception of COVID-19 and how they practiced the recommended COVID-19 prevention strategies.

Setting The study was conducted at a rural hospital in Lilongwe, Malawi.

Participants Adolescent postnatal mothers aged 19 years and below, with children aged less than 1 year, who understood the study and could consent.

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Results Adolescent mothers (n=395) completed the researcher-administered survey. The mean age was±17 (SD 1.157). Most participants had recently given birth to their first child (91%, n=358). Almost half (45%, n=113) of participants agreed with the COVID-19 prevention strategies recommended by the Malawian government. However, overall adherence to public health COVID-19 prevention strategies, including hand hygiene practices, was low among adolescent mothers. Participants with probable GAD and probable PND were more likely to practice COVID-19 prevention strategies than participants with low GAD-7 or EPDS scores, except for restrictions on religious gatherings.

Conclusions Adolescent perception of the potential threats or risks of COVID-19 was low. However, adolescents with probable PND and probable GAD reported higher adherence to some COVID-19 prevention strategies than adolescents without PND and GAD. The findings support the need for policies that integrate mental health within the public health response due to the potential direct and indirect effects the pandemic might have on perinatal mothers' mental health. Additionally, recommended pandemic responses should be appropriate and relevant to the social environment. (Author)

Full URL: https://doi.org/10.1136/bmjopen-2024-093624

2025-03363

Effect of SARS-CoV-2 infection on human embryonic development and clinical outcomes: a retrospective cohort study. Tian L, Sun Y, Jia M (2025), BMC Pregnancy and Childbirth vol 25, no 251, March 2025

Objective

To investigate the effect of SARS-CoV-2 infection on embryonic development and clinical outcomes.

Methods

This retrospective analysis included 538 couples in December 2022. The couples were divided into two groups (COVID-19 group, n = 157; and non-COVID-19 [control] group, n = 381) according to whether one member of the couple had been infected with SARS-CoV-2 before oocyte retrieval. The general information, fertility rate, embryonic development and clinical outcomes were compared between the groups.

Results

There were no significant differences in baseline characteristics between the two groups. The rates of fertility, good-quality embryos and blastocyst formation were similar between the two groups. The separate effects of male or female infection on embryonic development were further analyzed. The in vitro fertilization (IVF) fertilization rate was significant lower in the male COVID-19 group than in the control group (OR = 0.630, 95% CI = 0.510–0.776). In addition, the clinical pregnancy and live birth rate was significantly reduced in female patients who infected by SARS-CoV-2 compared to control group (OR = 0.018, 95% CI = 0.057–0.179).

Conclusion

This study shows that infection before oocyte retrieval does not have a clear negative effect on embryo outcomes, such as the rates of normal fertilization, good-quality embryos and blastocyst formation. However, infection before oocyte retrieval has negative effects on clinical outcomes in female patients. (Author)

Full URL: https://doi.org/10.1186/s12884-025-07205-y

2025-03221

Impact of maternal COVID-19 infection on offspring immunity and maternal-fetal outcomes at different pregnancy stages: a cohort study. Sun Y, Luo X, Chen N, et al (2025), BMC Pregnancy and Childbirth vol 25, no 219, February 2025

Objective

To investigate the impact of COVID-19 infection on maternal and neonatal outcomes and immunity in pregnant women in China.

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Methods

283 pregnant women with COVID-19 were included in the prospective observational cohort study and divided into five groups based on infection stage. Antibody levels were measured in plasma, umbilical cord blood, and breast milk, and combined with clinical data and 6-month follow-up results. We measured SARS-CoV-2 antibody levels using a chemiluminescence immunoassay and analyzed the data with the Kruskal-Wallis test, χ2 test, or Fisher's exact test.

Results

No significant differences were found in age, BMI, weight change during pregnancy, or the incidence of gestational hypertension, gestational diabetes, gestational hypothyroidism, intrahepatic cholestasis, transaminitis, preterm birth, small for gestational age, neonatal NICU transfers, developmental delays, and hearing damage among the five groups. The incidence of COVID-19 in infants from mothers infected at different stages of pregnancy was significantly lower than in the uninfected group ($P < 0.05$). Maternal and umbilical cord blood showed significantly higher IgG levels in the infected group compared to the uninfected group at different stages of pregnancy ($P < 0.05$). The median transplacental antibody transfer ratio across all infection groups was 1.15 (0.98–1.30), with no significant differences between them. The reinfection group had significantly higher IgA levels during pregnancy compared to other groups ($P < 0.05$).

Conclusion

No adverse outcomes were observed in mothers or infants at any stage of maternal SARS-CoV-2 infection. Antibodies in umbilical cord blood and breast milk may offer passive immunity to newborns for 1–3 months. Reinfection during pregnancy may extend this immunity without raising the risk of adverse outcomes. (Author)

Full URL: https://doi.org/10.1186/s12884-025-07323-7

2025-03023

Beyond COVID-19: Reported clinical practices in maternity care in Victoria during the COVID-19 pandemic and implications for the future – A statewide review. Forster DA, Hyde R, Matthews R, et al (2025), Australian and New Zealand Journal of Obstetrics and Gynaecology (ANZJOG) 16 January 2025, online

Background

In Australia, during the COVID-19 pandemic many routine pregnancy visits were replaced by telehealth, along with changes to routine screening and visitor policies. Many providers plan to continue these changes.

Aims

Describe changes to maternity care provision across the state of Victoria during the COVID-19 pandemic.

Materials and Methods

A population-based cross-sectional design was used. Managers of maternity services (public and private) were invited to complete a questionnaire by telephone or online exploring changes to care delivery, telehealth practices, perceived impact of changes and future telehealth implementation.

Results

Fifty per cent of maternity service managers (34/68; 27 public, six private) responded (March–April 2021). Around 50% of all pregnancy visits became telehealth, with multiple combinations of face-to-face and telehealth visits; 92% conducted the first (booking) appointment via telehealth. No specific gestational visit was conducted face-to-face by all services. Visits most likely to be face-to-face were at 39 and 40 weeks gestation (65%). For telehealth appointments, there was an ad hoc approach to routine screening, eg, measuring blood pressure (11% did not advise at all), fetal growth (26%—no specific strategy) and fetal heart rate (15%—no specific strategy). Over half (52%) would consider maintaining telehealth post-pandemic.

Conclusions

Even in a single state, there was great variation in what constitutes telehealth, when pregnant women should have

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face-to-face visits, and what routine screening in pregnancy should be maintained. This is concerning given over half the services are planning to continue telehealth post-pandemic, despite the lack of evidence of safety, efficacy and input from women and clinicians. (Author)

2025-03020

Geospatial Determinants of Maternal Overweight, Gestational Diabetes and Large for Gestational Age Birthweight in Melbourne During and After COVID-19 Lockdowns. Marzan MB, Rolnik DL, Jiang J, et al (2025), Australian and New Zealand Journal of Obstetrics and Gynaecology (ANZJOG) 2 February 2025, online

Background

Research has linked postcode-level sociodemographic, food and built environment factors to maternal and perinatal outcomes like overweight (BMI > 25 kg/m2), gestational diabetes mellitus (GDM) and large for gestational age (LGA) birthweight. However, little is known about how these factors were influenced by the COVID-19 pandemic. We examine how postcode-level indicators and lockdown conditions are associated with the prevalence of maternal overweight, GDM and LGA.

Materials and Methods

We analysed birth records from 12 public maternity hospitals in Melbourne, integrating postcode-level environmental indicators. Spatial regression models assessed associations between these indicators and maternal health outcomes, distinguishing between (a) the COVID-19 lockdown and (b) post-lockdown periods.

Results

We included 31 083 singleton birth records from 2020 to 2023 across 235 postcodes in Greater Melbourne. The prevalence of maternal overweight, GDM and LGA were 496, 178 and 103 per 1000 births, respectively. Maternal overweight was less prevalent in postcodes with higher median ages and socioeconomic scores, with disparities intensifying during lockdowns. GDM was more common in areas with younger, overseas-born populations, while LGA correlated with higher median age and fewer overseas-born residents. Notably, maternal overweight mediated the effect of socioeconomic status on GDM and LGA.

Conclusions

The prevalence of maternal overweight, GDM and LGA varies significantly across Melbourne, shaped by postcode-level factors. The pandemic lockdown amplified existing health disparities. The food and built-environment factors independently influence maternal and perinatal outcomes. (Author)

Full URL: https://doi.org/10.1111/ajo.13943

2025-03010

Characteristics and Causes of Stillbirths Following Disruption to Antenatal Care During Implementation of COVID-19 Mitigation Measures. Donaghey J, Chu S, Sridhar S, et al (2025), Australian and New Zealand Journal of Obstetrics and Gynaecology (ANZJOG) 3 March 2025, online

Background and Aim

Restrictions to mitigate COVID-19 transmission during the pandemic led to the disruption of routine antenatal care. We aimed to assess if those disruptions impacted the rates and types of stillbirths that occurred during that time.

Material and Methods

We performed a retrospective cohort study of the types and causes of stillbirths occurring in women attending three maternity hospitals in Melbourne, Australia, to understand if COVID-19 mitigation measures altered them. Stillborn babies conceived between November 2019 and February 2020 (restriction exposed cohort) were compared with stillborn babies conceived between November 2017 and February 2018 or November 2018 and February 2019 (control cohort). Stillbirths were classified according to the Perinatal Society of Australia and New Zealand classification system (2018).

Results

In the exposed cohort, 29/2511 foetuses were stillborn (11.55 per 1000 births), compared to 53/5171 (10.25 per 1000 births) in the non-exposed cohort. No statistical difference in rates of stillbirth was found between the two groups (odds ratio [OR] 1.13, 95% CI 0.72 to 1.78, p = 0.603). The rate of pregnancy terminations was significantly lower in the exposed cohort (7.1% vs. 34.0%, p = 0.007), while the antepartum stillbirth rate was significantly higher (82.8% vs. 49.1%, p = 0.003), particularly for unexplained stillbirths (51.7% vs. 17.0%, p < 0.001). The rate of congenital abnormalities was lower in the exposed cohort (24.1% vs. 45.3%, p = 0.059), however, not significant.

Conclusions

Changes in routine antenatal care during the COVID-19 pandemic may have resulted in a decreased diagnosis of congenital abnormalities, subsequent decreased terminations of pregnancy and a significant increase in unexplained antepartum foetal deaths. (Author)

Full URL: https://doi.org/10.1111/ajo.70008

2025-02824

The impact of acute and prior SARS-CoV-2 infection on maternal and neonatal outcomes in pregnant women: a single-center retrospective cohort study. Tang Y, Chen L, Han T, et al (2025), BMC Pregnancy and Childbirth vol 25, no 181, February 2025

Background

Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2) infection in pregnant women have an adverse impact on perinatal outcomes, including cesarean section, preterm birth, fetal distress. However, it's uncertain whether these adverse consequences are caused by previous SARS-COV-2 infection during pregnancy or acute infection at the time of delivery.

Methods

We conducted a single-center retrospective cohort study among pregnant women with singleton pregnancy who delivered between 1 December 2022 and 1 February 2023 (n = 2472). Pregnancies were divided into three groups: non-infected group, acute SARS-CoV-2 infection group, prior SARS-CoV-2 infection group based on PCR or antigen test. The clinical data for mothers and neonates came from medical records on internal healthcare system. Follow-up time spanned from admission to discharge. We investigated the impact of acute and prior SARS-CoV-2 infection on maternal and neonatal outcome. Multivariable logistic models were used to assess the risk of adverse perinatal outcome in pregnant women with acute and prior SARS-CoV-2 infection.

Results

Compared to the non-infected pregnant women, acute SARS-CoV-2 infected pregnant women had significant higher rates of intrahepatic cholestasis of pregnancy (ICP) (26 women [4.4%] vs. 8 women [1.0%]; aOR, 4.9 [95% CI, 2.2–11.0]; P < 0.001), preterm birth (<37 wk) (53women [9.0%] vs. 45 women [5.7%]; aOR, 1.7 [95% CI, 1.1–2.7]; P < 0.05), fetal distress(106 women [18.1%] vs. 82 women [10.4%]; aOR,1.9 [95% CI, 1.4–2.6]; P < 0.01), primary cesarean delivery (216 women [36.9%] vs. 239women [30.3%]; aOR, 1.4[95% CI, 1.1–1.8]; P < 0.01) and neonatal unit admission (69 neonates [12%] vs. 64 neonates [8.3%]; aOR, 1.6 [95% CI, 1.1–2.3]; P < 0.05), prior SARS-CoV-2 infection were associated with an increased risk of ICP (40 women [3.7%] vs. 8 women [1.0%]; aOR, 3.9 [95% CI, 1.8–8.5]; P <0.001).

Conclusions

Pregnant women at delivery with acute SARS-CoV-2 infection were associated with higher risk of ICP, preterm birth, fetal distress, primary cesarean delivery and neonatal unit admission. Prior SARS-CoV-2 infection during pregnancy was associated with higher risk ICP. These findings emphasize the need for optimization of strategies for prevention of SARS-CoV-2 infection in pregnant women, especially for acute infection at delivery. (Author)

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2025-02786

The prevalence and influencing factors of COVID-19 in pregnant women post-relaxation of epidemic control measures in Hunan Province, China. Wang Y, Liu Y, Zou K, et al (2025), Frontiers in Medicine 3 February 2025, online

Objective: To investigate the epidemiological characteristics of COVID-19 in pregnant women after relaxation of epidemic control measures.

Methods: This cross-sectional study employed a multistage stratified sampling method, involving six sampling sites (districts/counties) of three cities (Zhuzhou, Chenzhou, and Huaihua) in Hunan Province, China. A questionnaire-based survey collected basic maternal information, COVID-19 infection status, and pregnancy-related information of the participants. Data were extracted and double checked for accuracy. Statistical analyses were conducted using SPSS 25.0 software.

Results: Among the 7,761 pregnant women included in the study, 5,191 (66.9%) had a positive result of SARS-CoV-2 test or related symptoms. The majority of maternal infections were mild (90.0%), and a very small fraction were severe and critical (0.4% and 0.1 %). Headache and body aches (65.3%) were the most common symptoms. Of the 5,191 pregnant women with COVID-19, 4,150 (79.9%) had no complications during pregnancy. A total of 2,711 (52.2%) infected women had deliveries, and 449 (16.6%) newborns had infections. The impacts of COVID-19 on adverse pregnancy outcomes were limited. Logistic multivariable regression analysis showed that pregnant women with an education level of junior college and above (OR = 1.39, 95% CI: 1.18, 1.64), those with a monthly household income ≥ 3,000 yuan and above (OR = 1.18, 95% CI: 1.03, 1.34), those who lived with their family during family member infection (OR = 1.48, 95% CI: 1.32, 1.66), and those with pulmonary (OR = 1.41, 95% CI: 1.07, 1.85) or other (OR = 1.40, 95% CI: 1.19, 1.65) underlying diseases were more likely to have COVID-19. A farmer/worker occupation type (OR = 0.62, 95% CI: 0.48, 0.79) was a protective factor.

Conclusion: A high prevalence of COVID-19 in pregnant women following relaxation of control measures has been observed at provincial scale in China. Most cases were mild, and few effects on newborns were observed. Higher education and income, living with infected family members, and having pulmonary disease were identified as risk factors, suggesting that mobility is the most critical factor influencing infection rates. This study provides useful references for epidemic prevention and control in the future. (Author)

Full URL: https://doi.org/10.3389/fmed.2025.1485157

2025-02770

Risk of neonatal SARS-CoV-2 infection: a retrospective cohort study based on infected mothers with gestational diabetes mellitus. Ni J, Zheng Y, Tian J, et al (2025), Frontiers in Endocrinology 30 January 2025, online

Background: The COVID-19 pandemic has posed unprecedented challenges to global public health, especially for pregnant women and their offspring. However, little is known about the impact of maternal SARS-CoV-2 infection on neonatal outcomes, particularly in the context of coexisting gestational diabetes mellitus (GDM).

Methods: Hospitalized pregnant women with SARS-CoV-2 infection were retrospectively enrolled between November 2022 and January 2023, and matched with pregnant subjects free of SARS-CoV-2 infection based on their propensity scores. All women were tested for SARS-CoV-2 upon admission as part of routine procedures, then divided into groups of pregnant women with SARS-CoV-2 infection and GDM (SARS2+GDM), pregnant women with SARS-CoV-2 infection but without GDM (SARS2+noGDM), and pregnant women without SARS-CoV-2 infection or GDM (Normal group). A logistic regression model was used to study the risk of GDM, perinatal SARS-CoV-2 infection, and their interaction on neonatal SARS-CoV-2 infection.

Results: Of 378 pregnant women with SARS-CoV-2 infection, the neonatal infection rate was higher in the GDM group as compared to the SARS-CoV-2 infection only group, but both SARS-CoV-2 infection rates were lower than that of the normal control group. Logistic regression analysis identified an interaction between maternal SARS-CoV-2 infection

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and GDM on neonatal infection, where maternal SARS-CoV-2 infection (odds ratio [OR] = 0.31, 95%CI: 0.22-0.44) and vaccination for anti-SARS-CoV-2 (OR = 0.70, 95%CI: 0.50-0.98) were associated with lower odds of neonatal infection, while higher pre-pregnancy body mass index (BMI) (OR = 1.06, 95% CI: 1.02-1.10) and GDM (OR = 1.97, 95%CI: 1.21-3.21) were associated with higher odds of neonatal infection.

Conclusions: We demonstrate that the coexistence of GDM and perinatal SARS-CoV-2 infection was associated with an increased probability of neonatal SARS-CoV-2 infection. (Author)
Full URL: https://doi.org/10.3389/fendo.2025.1483962

2025-02707

A comparative cross-sectional study of the impact of COVID-19 pandemic on obstetrics and gynecology admissions in Croatia. Kalanj K, Mikuš M, Peček M, et al (2025), Frontiers in Medicine 14 February 2025, online

Background: The COVID-19 pandemic placed unprecedented pressure on healthcare systems worldwide and altered patients' perceptions of the system's ability to protect them from virus transmission. One significant consequence was a marked decline in hospital activity, a trend observed globally. This study aims to evaluate the impact of COVID-19 on hospitalization rates among patients with gynecological disorders in Croatia. It compares the number of patients treated surgically vs. conservatively before the pandemic (2017–2019) and during the pandemic (2020–2022) using the Diagnostic-Related Group (DRG) patient classification system. The DRG system is designed to group patients based on similar clinical conditions, complexity, and resource utilization. Hospital activity categorized by DRGs was analyzed to assess the impact of the COVID-19 pandemic on case volumes within DRG groups associated with gynecological and obstetric disorders.

Materials and methods: We conducted a comparative descriptive cross sectional study of the pre-post type according to STROBE guidelines to determine the impact of COVID-19 pandemic on hospital admission rates for patients with conditions associated with illnesses and abnormalities of the female reproductive system, as well as pregnancy, delivery, and the puerperium. The publicly available data collected by Croatian Institute of Public Health (CIPH) and the Croatian Health Insurance Fund (CHIF) were the main data source for this study. All gynecological hospital admissions in Croatia were grouped based on the Australian Refined Diagnosis Related Groups (AR-DRGs) and analyzed over two time periods: before (2017–2019) and during the pandemic (2020–2022).

Results: The average number of gynecological patients in all hospitals during the pandemic was 62,257 compared to pre-pandemic when the average number of patients was 71,519, a decrease of 15.5%. The results show a 10.56% decrease in the total number of non-surgical admissions and 12.8% decrease of surgical admissions across the hospital network during the pandemic (2020–2022).

Conclusion: The COVID-19 pandemic led to a significant decline in inpatient treatments in gynecology and obstetrics departments in Croatia. Our findings highlight the need for obstetrics and gynecology practitioners to develop innovative strategies to maintain or enhance patient access to appropriate care while ensuring stringent infection prevention measures for both patients and healthcare personnel. Furthermore, investing in healthcare system resilience is crucial to maintaining core functions during future crises. The lessons learned from the COVID-19 pandemic provide a valuable opportunity to fortify healthcare systems and must not be ignored. (Author)
Full URL: https://doi.org/10.3389/fmed.2025.1505387

2025-02684

Experiences of working as a clinical nurse while pregnant during the coronavirus disease-2019 pandemic: a qualitative study. Wu LY, Yeung WF, Pei YL, et al (2025), BMC Nursing vol 24, no 126, 3 February 2025

Background
Working as a pregnant clinical nurse might experience a range of challenges, such as significant anatomical and physiological changes as well as emotional and cognitive changes. That might be particularly obvious under the

historical background of coronavirus disease-2019 (COVID-19) pandemic. However, a dearth of studies has explored the experiences of working as a pregnant nurse during this special period. This study aimed to explore the experiences of working as a clinical nurse while pregnant during the COVID-19 pandemic.

Methods
A descriptive qualitative design was selected. Purposive sampling, combined with maximum variation strategy and snowball sampling, were utilized to identify and select participants from tertiary-teaching hospitals, specialized hospitals, and community hospitals in Zhejiang Province, southeastern China. Online semi-structured individual interviews were used to collect data, and conventional content analysis was used to analyze the data.

Results
Eleven Chinese nurses with a mean age of 31.8 years, ranging from 26 to 40 years, participated in this study. Four themes and twelve subthemes emerged: (1) still adhering to work as a clinical nurse despite being pregnant during the pandemic; (2) working during pregnancy under pandemic is still an ordinary nurse; (3) still staying in the special life phase as a pregnant mother; and (4) growth and gains as pregnant mother.

Conclusion
The pregnant clinical nurses suffered from various changes and difficulties during the pandemic. Managers, occupational health and other health system leaders, and policymakers should be aware of the importance of establishing a work environment that guarantees safe continued pregnancy. Future studies should focus on the establishment of specific guidelines and manuals regarding how pregnant nurses worked, as well as the development of self-protection interventions during pregnancy. Moreover, research on moral stigma and bullying in nursing during pregnancy deserves further exploration.

Clinical trial number
Not applicable. (Author)
Full URL: https://doi.org/10.1186/s12912-025-02764-z

2025-02537

Pandemic perceptions and healthcare decisions: exploring perceived COVID-19 threat's impact on perinatal healthcare in Florida. Ulfat F, Thayagabalu S, Iglesias A, et al (2024), Journal of Prenatal and Perinatal Psychology and Health (JPPPH) vol 38, no 3, Winter 2024, pp 58-74

The COVID-19 pandemic directly impacted well-being and healthcare delivery, but its indirect effects on health services utilization among pregnant women and new mothers remain less understood. Understanding how big events like pandemics impact health behaviors is essential for anticipating healthcare needs during future crises. This study examined how the perceived COVID-19 threat influenced health concerns and service utilization among 378 participants who were either pregnant or mothers of infants less than 12 months old, 18 years or older, and lived within a 50-mile radius of healthcare sites in the OneFlorida+ Clinical Research Consortium. An online Qualtrics survey assess COVID-19 threat perception, distress related to health and resource concerns (e.g., access to medicine, baby supplies, mental and general healthcare, and social interactions), and changes to health services utilizations (e.g.,induction schedule, hospital/birthing center choices, prenatal provider, and visit frequency) during the pandemic. Participants who perceived COVID-19 as a significant threat were more likely to report concerns about reduced access to general healthcare ($p = 0.043$). Pregnant participants, compared to mothers with infants under 12 months of age, expressed greater concern about reduced access to mental healthcare ($p = 0.015$).
Additionally, the perceived COVID-19 threat was linked to changes in prenatal care providers and labor induction schedules ($p<0.001$). These findings highlight the importance of integrating the perceived threat of pandemics or other major events into mental health screenings. Healthcare providers should proactively address potential changes in patient behavior during major events in anticipation of future crises. (Author)

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2025-02512

Impact of pandemic service changes on ethnic inequalities in maternal and perinatal outcomes in England: a population-based study. Ibrahim B, Jardine JE, Lenguerrand E, et al (2025), BMJ Open vol 15, no 1, January 2025, e090359

Objective In the UK and worldwide, there are substantial ethnic inequalities in maternal and perinatal care and outcomes. We aim to assess the impact of the unprecedented change in care provision during the COVID-19 pandemic on inequalities in adverse maternity outcomes.

Design Retrospective cohort study using structured electronic health record data.

Setting English hospital trusts providing maternity care.

Participants Women giving birth and babies born in the National Health Service (NHS) in England between 1 April 2018 and 31 March 2021, in three time groups: prepandemic, the first pandemic wave (26 March 2020 to 30 June 2020) and second pandemic wave (1 July 2020 to 31 March 2021). Self-reported ethnicity was grouped into White, South-Asian, Black, Mixed and Other.

Main outcome measures Composite and component measures of maternal (emergency caesarean section, obstetric anal sphincter injury, hysterectomy, sepsis, anaesthetic complications and prolonged hospital stay) and perinatal (stillbirth, neonatal death, preterm birth, brain injury, small for gestational age and prolonged hospital stay). Poisson regression was used to compare relative risks between different ethnic groups.

Findings 1.54 million maternal and 1.43 million neonatal records were included. The overall incidence of adverse outcomes per 1000 births initially decreased maternal: from 308.0 (95% CI 307.0 to 309.0) to 291.0 (95% CI 311.4 to 314.9) (p<0.001); perinatal: from 133.0 (95% CI 132.3 to 133.7) to 111.9 (95% CI 110.1 to 113.7) (p<0.001)), but then increased in the second pandemic period (maternal: 313.2 (95% CI 311.4 to 314.9) (p<0.001); perinatal 118.9 (95% CI 117.7 to 120.0) (p<0.001)). The risk of adverse outcomes was higher in women and babies from all ethnic minority groups compared with White women in both pandemic periods. Black and South-Asian women and babies were approximately 25% more likely to sustain adverse outcomes. While similar overall changes in adverse outcomes were seen in all groups, existing inequalities were sustained throughout the pandemic periods.

Interpretation Existing inequalities in adverse maternal and perinatal/neonatal outcomes were maintained, not tempered, during the pandemic, despite substantial changes to maternity services and care. Further research on possible interventions to reduce inequality is needed. (Author)

Full URL: https://doi.org/10.1136/bmjopen-2024-090359

2025-02361

COVID-19 status and utilisation of essential maternal and child healthcare services during the pandemic in Ahmedabad, India. Yasobant S, Lekha KS, Tadvi R, et al (2025), BMC Pregnancy and Childbirth vol 25, no 100, January 2025

Background

Access to essential healthcare services is pertinent to the achievement of universal health coverage in any nation. The COVID-19 lockdown was used to mitigate the spread of the pandemic. Consequently, there was a reduction in the Utilisation of Basic Healthcare Services (UBHS) in diverse dimensions. However, variation existed in the UBHS by COVID-19 status, but the extent of this disparity has not been extensively addressed in Ahmedabad, India. Therefore, this study explores the relationship between COVID-19 status and utilisation of essential maternal and child healthcare services during the pandemic in Ahmedabad, India.

Methods

A mixed-method approach was used for the data (both quantitative and qualitative) collection from November 2021 to October 2022. Four zones were purposefully selected from the 6 zones in Ahmedabad. The quantitative part of the study included pregnant women or those who had a baby delivery from April 2020 to October 2021 (n = 278), while 10

of these women participated in the qualitative part. Data were analysed using descriptive statistics, Chi-square test, and binomial logistic regression (α = 0.05). A deductive approach was used to analyse the qualitative data.

Results

Of the total 278, almost 43% of the women were infected with COVID-19 during their pregnancy. Women who tested positive availed lesser antenatal care (ANC), and Postnatal care (PNC). There were diverse experiences documented regarding access to essential maternal and child healthcare services during the pandemic. Women without COVID-19 are more likely to receive maternal healthcare services, such as visits of any healthcare workers [aOR = 2.59 (1.03-6.49)], counseling services [aOR = 1.92 (0.61- 6.06)], delivery at the planned place [aOR = 1.98 (0.99- 3.92)] as compared to those who are positive. Women without COVID-19 were more likely to be accompanied by healthcare workers during labor ([aOR = 2.91(1.04- 8.11) and to receive appropriate birth spacing counselling [aOR = 1.38 (0.7–2.71)].

Conclusion

Utilisation of essential maternal and child healthcare services was lower among women who were COVID-19 positive compared to those who were not. Social and health system determinants for disrupting healthcare services during the pandemic were fear of infection and unavailability of the health workforce. Health planners and policymakers are encouraged to take into consideration of these findings while building resilient health care for managing future pandemics. (Author)

Full URL: https://doi.org/10.1186/s12884-025-07201-2

2025-02342

Reduced fetal movements and COVID-19 infection: a retrospective cohort study. Gentili A, Sterpu I, Tingström J, et al (2025), BMC Pregnancy and Childbirth vol 25, no 91, January 2025

Background

Fetal movements are an important indicator of fetal well-being; therefore, reduced fetal movements (RFMs) can indicate fetal compromise. RFM is associated with fetal growth restriction (FGR) and intrauterine fetal death (IUFD). Studies have implied that COVID-19 infection increases the risk of adverse fetal outcomes, such as preterm birth and IUFD. It is unclear how COVID-19 infection may aggravate these fetal outcomes among women presenting with RFM.

The aims of the study were to (1) determine whether adverse fetal outcomes in women with RFM increased in 2020 compared to 2019, the year before the pandemic, and (2) evaluate whether maternal COVID-19 infection during pregnancy was a risk factor for adverse fetal outcomes in comparison to previously established risk factors among women seeking care for RFM.

Methods

All women who sought care due to RFM and were delivered at Soder Hospital from 2019 to 2020 were included. Fetal composite outcomes were constructed and compared between women with RFM and COVID-19 and women with RFM but without COVID-19.

Results

COVID-19 infection did not increase the risk of adverse fetal outcomes in women who sought care for RFM. A twofold risk for adverse fetal outcomes was found among all primiparous women vs. multiparous women with RFM (98/788 [12.4%] vs 37/644 [9.8%], AOR = 2.5, 95% CI (1.6–3.7).

Conclusion

The proportion of adverse composite outcomes among women with RFM during the first year of the pandemic did not increase compared to the year before. Composite outcomes were marginally higher in the COVID-19-positive group compared to the COVID-19-negative group, but it was not statistically significant. (Author)

Full URL: https://doi.org/10.1186/s12884-025-07196-w

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2025-02285

COVID-19 in pregnancy. Greer O, Saeed Z, Von Woon E, et al (2025), Obstetrician and Gynaecologist vol 27, no 1, January 2025, pp 43-56

In this review, the authors summarise current understanding of the impact of the SARS-CoV-2 virus and pandemic on pregnant and recently pregnant women and the recommended management. (Author, edited)

Full URL: https://doi.org/10.1111/tog.12956

2025-02220

Suboptimal care factors and stillbirths during the COVID-19 pandemic in Victoria: A state-wide linkage study of stillbirths and Consultative Council on Obstetric and Paediatric Mortality and Morbidity case reviews. Hui L, Marzan MB, Palmer KR, et al (2025), Women and Birth: Journal of the Australian College of Midwives vol 38, no 1, January 2025, 101855

Problem

The COVID-19 pandemic affected perinatal outcomes globally, with some regions reporting an increase in stillbirths.

Background

Melbourne, Australia, experienced one of the longest and most stringent pandemic lockdowns.

Aim

To compare stillbirth rates for singleton pregnancies > 20 weeks' gestation before and during the pandemic and examine differences in suboptimal care factors.

Methods

January 2018 to December 2021 data on singleton births ≥ 20 weeks in Victoria were extracted and linked to stillbirths in the Consultative Council on Obstetric and Paediatric Mortality and Morbidity database. Statistical comparisons of patient characteristics, pregnancy outcomes, and suboptimal care factors were performed between the pre-pandemic period (2018–19) and the pandemic years (2020, 2021).

Results

Among 302,528 singleton births, 2244 stillbirths were recorded. The stillbirth rate was higher in the first pandemic year (0.81 %) compared with pre-pandemic years (0.73 %) and the second pandemic year (0.70 %) ($p = 0.04$). No stillbirths were directly attributable to maternal COVID-19 infection. The proportion of stillbirths with suboptimal care factors was similar across periods ($p > 0.05$). 'Barriers to engaging care' increased in frequency as a contributing factor ($p < 0.001$). 'Organizational factors' were more common in 2020 ($p < 0.001$), while suboptimal care related to healthcare personnel was less common in 2021 ($p < 0.001$). Disadvantaged and non-Australian-born women were more likely to experience suboptimal care.

Discussion

Significant fluctuations in stillbirth rates were observed during the pandemic, with a temporary rise in 2020. Barriers to accessing care were a notable factor.

Conclusion

Embedding woman-centred care to address structural inequities is essential for supporting families and creating a just health system. (Author)

Full URL: https://doi.org/10.1016/j.wombi.2024.101855

2025-01928

Correlates of and Disparities in Cancellations or Delays of Prenatal Visits During the Covid-19 Pandemic: Emphasis on Racial/Ethnic Minorities and Persons with Low Socioeconomic Status. Lee J (2024), Journal of Racial and Ethnic Health Disparities vol 11, no 3, June 2024, pp 1564-1577

Objectives: To investigate barriers and disparities in prenatal visits across population subgroups.

Methods: This pooled cross-sectional study was conducted using Pregnancy Risk Assessment Monitoring System for 2020 through 2021. Women who reported their experiences of cancellation or delay in prenatal visits were included. A multivariable regression analysis estimated adjusted prevalence ratios (aPR) for cancellations or delays in prenatal care.

Results: Of a total of 11,427, one-third had cancelled or delayed care. Hispanics, compared to their white counterparts, were 22% likelier to have cancelled or delayed care. Women covered by Medicaid and those with depression had 17% and 34% greater likelihoods of cancellation or delay, respectively. Cancellations or delays were comparable for the years 2020 and 2021 across reasons, except for facility closures, which were more common in 2020 than in 2021. Hispanics tended to cancel or delay prenatal visits more often than whites for reasons, such as facility closures, COVID-19-related reasons, a lack of transportation, and loss of insurance, while transportation and insurance issues were greater barriers for blacks. Women with less than a high school diploma were more likely to report cancellations or delays due to transportation issues (aPR 2.86, 95%CI 1.47-5.57; p = 0.002) and loss of insurance (aPR 4.82, 95%CI 1.64-14.23; P = 0.004).

Conclusions: While a large proportion of women experienced disruptions in prenatal care, subsets of the population, including racial/ethnic minorities and the low socioeconomically disadvantaged, faced disproportionate challenges. The current findings provide practical implications for a tailored approach to reducing barriers and disparities in prenatal care.

Keywords: Barriers; COVID-19; Low socioeconomic status; Prenatal care; Racial/ethnic minorities.

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2025-01927

Preventing Health Disparities during COVID through Perinatal Home Screening as Black Authoritative Knowledge.

Chapman RR, Mohamed SB, Rage H, et al (2024), Journal of Racial and Ethnic Health Disparities vol 11, no 3, June 2024, pp 1286-1300

During COVID-19 epidemic, health protocols limited face-to-face perinatal visits and increased reliance on telehealth. To prevent increased health disparities among BIPOC pregnant patients in health-underserved areas, we used a pre-post survey design to pilot a study assessing (1) feasibility of transferring technology including a blood pressure (BP) cuff (BPC) and a home screening tool, (2) providers' and patients' acceptance and use of technology, and (3) benefits and challenges of using the technology. Specific objectives included (1) increasing contact points between patients and perinatal providers; (2) decreasing barriers to reporting and treating maternal hypertension, stress/depression, and intimate partner violence (IPV)/domestic violence (DV); and (3) bundling to normalize and facilitate mental, emotional, and social health monitoring alongside BP screening. Findings confirm this model is feasible. Patients and providers used this bundling model to improve antenatal screening under COVID quarantine restrictions. More broadly, home-monitoring improved antenatal telehealth communication, provider diagnostics, referral and treatment, and bolstered patient autonomy through authoritative knowledge. Implementation challenges included provider resistance, disagreement with lower than ACOG BP values to initiate clinical contact and fear of service over-utilization, and patient and provider confusion about tool symbols due to limited training. We hypothesize that routinized pathologization and projection of crisis onto BIPOC people, bodies, and communities, especially around reproduction and continuity, may contribute to persistent racial/ethnic health disparities. Further research is needed to examine whether authoritative knowledge increases use of critical and timely perinatal services by strengthening embodied knowledge of marginalized patients and, thus, their autonomy and self-efficacy to enact self-care and self-advocacy.

Keywords: Authoritative knowledge; COVID-19; Perinatal health disparities; Pre-eclampsia; Self-screening; Telehealth.

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2025-01832

Becoming a new parent during the pandemic: experiences of pregnancy, birth, and the postnatal period. Blakey E, Kuria D, McGillion M, et al (2025), BMC Pregnancy and Childbirth vol 25, no 39, January 2025

New parenthood in ordinary times can be a vulnerable and unpredictable time. The Covid-19 pandemic brought additional, unprecedented changes to policy and practice that drastically impacted on the experiences of parents. This study aimed to enhance our understanding of the experiences of new parents during the pandemic by qualitatively analysing their experiences. New parents from the UK (N = 303; female = 296; male = 7) responded to a survey conducted between 2021–2022 asking about experiences of pregnancy, birth and the postnatal period. Responses were analysed thematically, taking an interpretivist approach, and drawing across the three time periods. Parents reported conflicting feelings, negative feelings and silver linings cutting across eight themes, including: impacts on well-being, feeling without a village, changes to healthcare, atypical social experiences as a new parent, differential impacts on financial and working lives, conflicting feelings around digital technology, anger and worry regarding contradictory government guidance and recommendations for other parents. The findings offer much needed insights into the experiences of new parents during this time and provide some context to the documented elevated levels of perinatal mental health difficulties in new parents during the pandemic. We suggest key recommendations going forwards in the care of new parents now, and in times of future national crisis. (Author)

Full URL: https://doi.org/10.1186/s12884-024-07110-w

2025-01771

Women 's perception on the quality of maternal and newborn care during the COVID-19 pandemic in German-speaking countries: Findings from the IMAgiNE EURO project comparing data from Germany, Switzerland and Austria. Grylka-Baeschlin S, Gemperle M, Mariani I, et al (2025), Midwifery vol 140, January 2025, 104209

Problem

Restrictions during the COVID-19 pandemic compromised maternal and newborn care.

Background

Countries in the German speaking area share several clinical care guidelines but differed significantly in the strictness of COVID-19 protective measures.

Aim

To investigate the quality of maternal and newborn care (QMNC) during the COVID-19 pandemic in the German-speaking area and explore associations between the reorganisational changes due to COVID-19 and QMNC, as described with WHO Standards-based Quality Measures.

Methods

As part of the IMAgiNE EURO study (ClinicalTrials.gov: NCT04847336), we conducted an online survey on the QMNC in the German-speaking area, including women who gave birth in Germany, Switzerland, and Austria. Descriptive statistics, Spearman rank correlation coefficient and multivariable quantile regression were used.

Findings

Out of a total of 70,721 women accessing the online questionnaire, 1,875 were included (Germany: n = 1,053, Switzerland: n = 494, Austria: n = 328). Significant differences across countries were found in Quality Measures. In Switzerland, women scored Quality Measures more favourable than in Germany and Austria in all four sub-indexes of QMNC. In Austria, Quality Measures gaps in the sub-index 'Experience of care' were higher. The sub-index 'Reorganisational changes due to COVID-19' correlated weakly to strongly with the other sub-indexes (between r = 0.33 and r = 0.62, $p < 0.001$ for all correlations).

Discussion

Midwives and other health professional should pay particular attention to the provision of respectful, high-quality care.

Conclusion

To effectively improve QMNC, further research is essential to monitor the quality of care and develop targeted interventions beyond the COVID-19 pandemic addressing inherent challenges in the organisation and delivery of care. (Author)

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2025-01641

Maternal oxygenation and fetal-neonatal mortality among patients with COVID-19 requiring advanced respiratory support in ICU: A multicenter prospective cohort study. Vasquez DN, Giannoni R, Salvatierra A, et al (2024), International Journal of Gynecology & Obstetrics 5 December 2024, online

Objective

To explore the association of maternal characteristics, oxygenation, and mechanical ventilatory parameters with fetal and neonatal outcomes.

Methods

The present study was a multicenter, binational (Argentina/Colombia), prospective, cohort study, conducted in 21 intensive care units (ICUs) and including pregnant or postpartum patients with COVID-19 pneumonia requiring advanced respiratory support and their fetuses/neonates. Advanced respiratory support was defined as high-flow nasal cannula (HFNC), non-invasive ventilation (NIV) or invasive mechanical ventilation (IMV).

Results

A total of 91 patients were admitted to 21 ICUs: 63 (69%) antepartum and 28 (31%) postpartum. Among those admitted antepartum (63), delivery was induced in 43 (68.3%), being the reasons mostly maternal (28/43; 65.1%). Of 71 births, 64 (90%) were preterm. A total of 14 fetal/neonatal losses (14/91;15.4%) occurred. The main differences between patients whose fetuses/neonates survived versus those who did not survive were in APACHE II (12 [7–15] vs. 16.5 [14–20]; P = 0.003), SOFA24 (4 [3–5] vs. 6.5 [5–8]; P = 0.001), gestational age at delivery (32.9 ± 3 vs. 27.6 ± 6.2; P = 0.014), acute respiratory distress syndrome (54 [70.1%] vs. 14 [100%]; P = 0.011), septic shock (26 [33.8%] vs. 9 [64.3%]; P = 0.031), IMV (55 [71.4%] vs. 14 [100%]; P = 0.019) and plateau pressure before delivery (23 [21–26] vs. 28 [27–30]; P = 0.019). The incidence of fetal/neonatal mortality among 47 pregnant patients requiring IMV with SpO2 < 95% versus SpO2 >95% before intubation was 12/35 (34.28%) versus 1/12 (8.33%), respectively; P = 0.163. The incidence of fetal/neonatal mortality among those with SpO2 <95% versus SpO2 >95% before delivery was 5/18 (27.77%) versus 8/29 (25.58%), respectively; P = 0.999.

Conclusion

The vast majority of births were preterm. Among patients admitted antepartum, most deliveries were induced for maternal reasons. Fetal/neonatal losses were associated with gestational age at delivery, maternal severity of illness on admission and certain ventilatory parameters but not with maternal oxygenation, as is commonly the focus in these patients. (Author)

2025-01564

Racial and Ethnic and Rural Variations in the Use of Hybrid Prenatal Care in the US. Hung P, Yu J, Harrison SE, et al (2024), JAMA Network Open vol 7, no 12, December 2024, e2449243

Importance Understanding whether there are racial and ethnic and residential disparities in prenatal telehealth uptake is necessary for ensuring equitable access and guiding implementation of future hybrid (ie, both telehealth and in-person) prenatal care.

Objective To assess temporal changes in individuals using hybrid prenatal care before and during the COVID-19 public health emergency (PHE) by race and ethnicity and residence location in the US.

Design, Setting, and Participants This retrospective cohort study analyzed electronic health record data of prenatal care visits from the National COVID Cohort Collaborative Data Enclave, comprising data from 75 health systems and freestanding institutes in all 50 US states. Data were analyzed on 349 682 nationwide pregnancies among 349 524 people who gave birth from June 1, 2018, through May 31, 2022. Multivariable generalized estimating equations were

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used to examine variations in receiving hybrid vs only in-person prenatal care. Data phenotyping and analysis occurred from June 13, 2023, to September 27, 2024.

Exposures Prenatal period overlap (never, partially, or fully overlapping) with the COVID-19 PHE, maternal race and ethnicity, and urban or rural residence.

Main Outcomes and Measures Hybrid vs in-person–only prenatal care.

Results Of 349 682 pregnancies (mean [SD] age, 29.4 [5.9] years), 59 837 (17.1%) were in Hispanic or Latino individuals, 14 803 (4.2%) in non-Hispanic Asian individuals, 65 571 (18.8%) in non-Hispanic Black individuals, 162 677 (46.5%) in non-Hispanic White individuals, and 46 794 (13.4%) in non-Hispanic individuals from other racial and ethnic groups. A total of 31 011 participants (8.9%) resided in rural communities. Hybrid prenatal care increased from nearly none before March 2020 to a peak of 8.1% telehealth visits in November 2020, decreasing slightly to 6.2% by March 2022. Among the fully overlapping group, urban residents had nearly 2-fold odds of hybrid prenatal care compared with rural people (adjusted odds ratio [AOR], 1.98; 95% CI, 1.84-2.12). Hispanic or Latino people (AOR, 1.48; 95% CI, 1.41-1.56), non-Hispanic Asian people (AOR, 1.47; 95% CI, 1.35-1.59), and non-Hispanic Black people (AOR, 1.18; 95% CI, 1.12-1.24) were more likely to receive hybrid prenatal care than non-Hispanic White people.

Conclusions and Relevance In this cohort study, hybrid prenatal care increased substantially during the COVID-19 PHE, but pregnant people living in rural areas had lower levels of hybrid care than urban people, and individuals who belonged to racial and ethnic minority groups were more likely to have hybrid care than White individuals. These findings suggest that strategies that improve equitable access to telehealth for people who live in rural areas and people in some minority racial and ethnic groups may be useful. (Author)

Full URL: https://doi.org/10.1001/jamanetworkopen.2024.49243

2025-01443

Placenta a potential gateway of prenatal SARS-CoV-2 infection: A review. Hindra S, Chalak K, Das P, et al (2024), European Journal of Obstetrics & Gynecology and Reproductive Biology vol 303, December 2024, pp 123-131

SARS-CoV-2, the causative agent of COVID-19, can infect various tissues in the body apart from the lungs. Although placental infection remains controversial, COVID-19-associated placental abnormalities have been reported worldwide. Therefore, COVID-19 poses a significant risk for fetal distress as well. Scientists are currently debating whether such distress results from direct viral induced assault or placental damage caused by the mother's immune response. The placenta develops different histopathological lesions in response to maternal SARS-CoV-2 infection. While some studies support both theories, the transmission rate through the placenta remains low. Therefore, a more in-depth study is necessary to determine the primary cause of maternal SARS-CoV-2-induced fetal distress. This comprehensive review is aimed to shed light on the possible reasons towards fetal distress among mothers with COVID-19. This review describes the various mechanisms of viral entry along with the mechanisms by which the virus could affect the placenta. Reported cases of placental abnormalities and fetal distress symptoms have been collated to provide an overview of the current state of knowledge on vertical transmission of COVID-19. (Author)

2025-01152

Assessing the impact of the COVID-19 pandemic on uptake and experiences of gestational diabetes mellitus screening in Ontario: A parallel convergent mixed-methods study. Hadid D, Correia RH, McDonald SD, et al (2024), PLoS ONE vol 19, no 12, December 2024, e0315983

Objective: Gestational diabetes mellitus (GDM) is a common medical complication of pregnancy that leads to adverse outcomes for both infants and pregnant people. Early detection and treatment can mitigate these negative outcomes. The COVID-19 pandemic strained healthcare and laboratory services, including GDM screening programs. Adapted GDM screening guidelines were introduced in many jurisdictions. This study examined changes in uptake, modality, and experiences of GDM screening in Ontario, Canada during the COVID-19 pandemic.

Methods: This convergent mixed-method study involved a population-based retrospective cohort analysis of Ontario-based health administrative data to describe and compare gestational diabetes screening rates among 85,228 individuals with live, in-hospital births between January 1-March 31 before (2019) and during the COVID-19 pandemic (2021 and 2022). Descriptive analyses were conducted for GDM screening pathways aligning with usual and pandemic-adapted screening guidance. Qualitative descriptive interviews were conducted about experiences and decision-making of GDM screening with 43 Ontario residents who gave birth between May 2020 and December 2021. Data were integrated during the design and interpretation phases.

Results: There were small but significant increases in GDM screening during the pandemic; likelihood of screening completion using any modality increased in 2021 and 2022 compared to 2019. Testing modality shifted; the alternate screening strategies introduced during COVID-19 were adopted by clinicians. Interview participants perceived GDM screening to be important and obligatory but accompanied by a degree of stress about potential COVID-19 exposure.

Conclusion: Despite health system challenges experienced in Ontario during the COVID-19 pandemic, GDM screening rates increased in the study population, demonstrating the success of adapted GDM screening guidelines. Decisions about screening modalities were driven by clinician expertise, and interview participants were satisfied to provide informed consent to these recommendations.

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Full URL: https://doi.org/10.1371/journal.pone.0315983

2025-01144

Effect of Covid-19 on maternal and child health services utilization in Ghana. Evidence from the National Health Insurance Scheme (NHIS). Opoku-Boateng YN, Opoku-Asante E, Lagarde M, et al (2024), PLoS ONE vol 19, no 12, December 2024, e0311277

Introduction: Covid-19 has had devastating effect on health systems and health utilization globally. Maternal and newborn care were adversely affected but little or nothing is known about the impact it has caused to it. This study seeks to determine the effect of Covid-19 on healthcare utilization with specifics on Antenatal, Postnatal, Deliveries and Out-patient attendance.

Methods: The study uses secondary data obtained from the four (4) Claims Processing Centres of the National Health Insurance Authority. Through the use of convenient sampling, a total of 502 facilities were selected for inclusion in the research. The study used a longitudinal claims submitted from a cross-section of health facilities namely Community-Based Health Planning and Services, Maternity Homes, Health Centers, Clinics, Primary, Secondary, and Tertiary Hospitals for Antenatal, Postnatal, Out-patient consultations and Delivery attendances from January 2018 to December 2021. Data before and during the Covid-19 pandemic were compared. Segmented regression analysis as an interrupted time series analysis was employed to assess the effect of the pandemic on utilization of services.

Results: The results indicate that Covid-19 had a significant impact on healthcare utilization in Ghana. Month-on-month, antenatal and out-patient utilization decreased by 21,948.21 and 151,342.40, respectively. Postnatal and delivery services saw an insignificant monthly increase of 37.76 and 1,795.83 from the onset of the covid-19 pandemic and the introduction of movement restrictions. This decline was observed across all care levels, except for Community-Based Health Planning and Services, which showed a slight increase. Also, the results indicate projected average misses of scheduled antenatal, postnatal, out-patient reviews, and deliveries at 21,037.75, 6,428.23, 141,395.30 and 4,745.63 patients respectively.

Conclusion: The study reveals that Covid-19 led to a decrease in utilization of healthcare which affected pregnant

women and newborn care as well. It was evident from the results that community-based healthcare is more resilient and efficient in delivering healthcare amidst the pandemic. In our quest to achieve Universal Health Coverage by 2030, Ghana's health system should improve on the community-based healthcare system and include technology in its healthcare delivery for the people.

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Full URL: https://doi.org/10.1371/journal.pone.0311277

2025-01030

Everything feels just a little heavier, more wrought with implications, you know? – a mixed-methods study examining lifestyle behaviors, health, and well-being of pregnant and postpartum women during the early months of the COVID-19 pandemic. Dube S, Asim M, Gonzalez J, et al (2025), BMC Pregnancy and Childbirth vol 25, no 9, January 2025

Background

While the striking impact of the COVID-19 pandemic on mental health, heath care access and lifestyle behaviors, including perceived health, diet, physical activity, and sleep has been reported, few studies have examined these domains jointly among pregnant and postpartum people in the early stages of the COVID-19 pandemic.

Methods

This mixed methods study was conducted among a subset of participants (n = 22) in a cohort study in Austin, Texas, who were pregnant or had recently delivered when the outbreak occurred. Measures were from the early second trimester up to 6 months postpartum. Findings from questionnaires were complemented by qualitative interviews during Spring/Summer 2020 regarding experiences during the early pandemic.

Results

From our quantitative data (n = 22), most participants reported that the pandemic generally had a negative impact on their lives (81%), that they shifted to eating more at home (71%), and that they were less physically active (62%). Five major themes emerged in our qualitative interviews (n = 22): (1) adaptation to pandemic restrictions; (2) psychosocial experiences, such as feelings of anxiety, guilt, sadness, isolation, and frustration; (3) health behavior changes; (4) health care experiences; and (5) where they obtained general and perinatal related pandemic information. Of those who completed both pregnancy and postpartum interviews (n = 8), all reported anxiety during both periods; however, those who delivered in Spring 2020 experienced more anxiety surrounding delivery and less social support than those who delivered in Summer 2020, who reported less anxiety surrounding hospital birth and greater social support, particularly after delivery.

Conclusions

Overall, our findings confirm prior evidence that the COVID-19 pandemic had a marked impact on stress, anxiety, and worries, as well as lifestyle behaviors among pregnant and postpartum people. Our work provides lessons for health care practitioners about support need for pregnant and postpartum persons amid societal disruption. (Author)
Full URL: https://doi.org/10.1186/s12884-024-07011-y

2025-00895

Outcomes of pregnant and post-partum patients admitted to the intensive care unit with COVID-19 in Australia: An analysis of SPRINT-SARI Australia. Barnes E, Zhao P, Udy A, et al (2024), Australian and New Zealand Journal of Obstetrics and Gynaecology (ANZJOG) 9 December 2024, online

Background

Pregnant and post-partum (collectively peri-partum) women may be at increased risk of severe COVID-19 disease.

Aims

To describe the characteristics, interventions, and outcomes of peri-partum patients admitted to intensive care units (ICUs) in Australia with COVID-19.

Materials and methods

We conducted a prospective, multicentre observational study using the SPRINT-SARI Australia database across 63 ICUs in Australia. All women <45 years of age, admitted to a participating Australian ICU, with laboratory-confirmed COVID-19 between 1 March 2020 and 1 June 2023 were included. Participants were categorised as either peri-partum, defined as pregnant or up to six weeks post-partum, or non-pregnant. The primary outcome was in-hospital mortality.

Results

A total of 737 eligible female patients were admitted to ICUs over the study period: 168/737 (23%) were peri-partum, while 569/737 (77%) were non-pregnant. The median age of peri-partum women was 31 (interquartile range (IQR) 27–36) years old, and median gestation was 28.0 (IQR 4–40) weeks. When compared to non-pregnant women, peri-partum women had lower rates of comorbidities (1.8% vs 14.4% $P < 0.001$), lower vaccination rates (27.4% vs 45.2%, $P < 0.001$), similar rates of mechanical ventilation, and greater use of tocilizumab (29.2% vs 4.0%, $P < 0.001$). Complications were low in both groups. In-hospital mortality was lower in peri-partum patients: 1/168 (0.6%) vs 24/569 (4.2%); $P = 0.04$.

Conclusions

Peri-partum patients made up ~25% of all women aged <45 years old admitted to Australian ICUs with COVID-19, and nearly 30% required mechanical ventilation. Despite lower vaccination rates in peri-partum patients, in-hospital mortality was lower than in non-pregnant patients. (Author)

2025-00888

Association Between COVID-19 Pandemic Phases and the Risk of Maternal Intensive Care Unit Admission: A Retrospective Analysis of 215,363 Victorian Hospital Admissions. Barrese M, Marzan MB, Hui L (2025), Australian and New Zealand Journal of Obstetrics and Gynaecology (ANZJOG) 2 January 2025, online

Background

There are no published Australian population-based data on serious COVID-19-associated maternal morbidity before and after widespread vaccination.

Aims

To compare COVID-19 infection rates, intensive care unit (ICU) admissions, and length of stay in hospitalised pregnant patients before and after achieving 70% state-wide maternal COVID-19 vaccination coverage.

Material and Methods

Population-based retrospective cohort study involving all hospital-admitted episodes for pregnant patients over 15-years-old with COVID-19 in Victoria from 1 March 2020 to 31 March 2022. Phase 1 was defined as March 2020—October 2021 when maternal vaccination coverage < 70%; Phase 2 was defined as November 2021–March 2022 when maternal vaccination coverage ≥ 70%. Primary outcomes include COVID-19 rates, ICU admission rates, and length of stay. A p-value of < 0.05 was considered statistically significant.

Results

We analysed 215,363 hospital admissions, among which 2,128 (0.99%) had COVID-19. The percentage of admitted pregnant patients with COVID-19 was higher in Phase 2 than Phase 1 (3.27% vs. 0.41% respectively, $p < 0.001$). However, Phase 2 was associated with lower maternal ICU admission rates (2.02% vs. 5.39%, $p < 0.001$) and lower median length of stay (2.19 vs. 3.11 days, $p < 0.001$) compared with Phase 1. The risk of COVID-19 was significantly lower in socioeconomically advantaged pregnant patients (aRR = 0.83 [95% CI, 0.76–0.90], $p < 0.001$) and pregnant patients ≥ 30-years-old (aRR = 0.81 [95% CI, 0.74–0.88], $p < 0.001$).

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Conclusions
Maternal ICU admission risk and length of stay were significantly lower among pregnant patients with COVID-19 during Phase 2, which is likely due to the combined effects of high maternal COVID-19 vaccination coverage and changes in SARS-CoV-2 variants. (Author)

2025-00857

COVID-19 Serostatus Does Not Affect the Intrauterine Transfer of Micronutrients and Fatty Acids or Maternal–fetal Lymphocyte Cell Composition: An Observational Study. Surekha MV, Meur G, Suneetha N, et al (2024), American Journal of Perinatology 24 December 2024, online

Objective Studies on the effects of coronavirus disease 2019 (COVID-19) on pregnant mothers and their newborns, specifically in relation to their micronutrient status, fatty acids (FAs), and inflammatory status are sparse. We hypothesized that COVID-19 infection would adversely affect the transfer of nutrients, and FAs from mothers to their fetuses via the umbilical cord and maternal–fetal distribution of inflammatory cells. This study aimed to determine the effect of COVID-19 on micronutrients, inflammatory markers, and FAs profiles in pregnant mothers and their newborns' cord blood.

Study Design This was a cross-sectional study of 212 pregnant mothers in the third trimester and their newborns, recruited after testing for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) serostatus. Peripheral blood of mothers and cord blood were collected at birth and analyzed for vitamin B12 (Vit B12), folic acid, 25(OH)D3, FAs, and peripheral blood mononuclear cells. Student's t-test or analysis of variance (ANOVA) was used to express statistical significance. Non-normal data were tested using the Mann–Whitney U test and Kruskal–Wallis test, with proportions compared with the chi-square test.

Results Vit B12 levels were significantly low and adrenic acid levels significantly high in COVID-19 seropositive mothers while 25(OH)D3 was significantly low in seropositive cord blood. Irrespective of COVID-19 serostatus, folate, vit B12, saturated FA levels were significantly high in cord blood indicating their increased transfer from mothers to the fetus. However, monounsaturated (MUFA) and polyunsaturated fatty acid (PUFA) levels were significantly lower in cord blood. Irrespective of COVID-19 serostatus, CD4+ T helper cells (percentage of lymphocytes) were significantly higher in cord blood, while NK cells, NK-T cells, and CD8+ T-cytotoxic cells—percentage of lymphocytes—were significantly lower in cord blood when compared with corresponding mother's blood.

Conclusion The results indicate that while COVID-19 did not impede the transfer of essential nutrients such as MUFA and PUFA from mother to fetus, or affect maternal–fetal immune cell responses, it did appear to affect the levels of vit B12, vitamin D, and adrenic acid.

Key Points

COVID-19 did not impede essential fatty acids transfer through cord blood.

COVID-19 affected maternal-fetal immune responses.

COVID-19 affected vitB12, vitamin D and adrenic acid levels. (Author)

2025-00779

Adapting Group Prenatal Care for Telehealth: A COVID-Era Innovation to Address Barriers to Care for Latinx Clients. Daily CA, Gresh A, Hamilton ER, et al (2024), Journal of Midwifery & Women's Health vol 69, no 6, November/December 2024, pp 945-951

The use of telehealth prenatal care increased exponentially during the coronavirus disease 2019 (COVID-19)

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pandemic, but there is no literature describing its use for group prenatal care during this time. The COVID-19 pandemic also exacerbated structural barriers to care that disproportionately affect Black and Latinx people. Telehealth enabled pregnant people to access health care and minimize infectious risks. Telehealth group prenatal care (T-GPNC) incorporated the essential elements of CenteringPregnancy with telehealth is an innovative care delivery method borne out of necessity during the COVID-19 pandemic that has potential to mitigate structural barriers to care.

Mary's Center is a federally qualified health center (FQHC) in Washington, DC, and Maryland that rapidly pivoted to individual telehealth prenatal care early in the pandemic. Mary's Center used our experience with group care and guidance from the Centering Healthcare Institute on virtual Centering to launch T-GPNC. This new model included home self-monitoring equipment and video classrooms, mixed with in-person individual care visits. We used a team-based approach with nurses, midwives, and community health workers to provide holistic care to pregnant people. Our robust care coordination team also connected them to home visiting, mental health services, and nutrition counseling.

The purpose of this article is to describe how Mary's Center modified the CenteringPregnancy model of group prenatal care for telehealth, following the hallmarks of CenteringPregnancy, and met the needs of Spanish-speaking clients, henceforth Latinx clients. A secondary purpose is to demonstrate how telehealth can expand access to health care and remove structural barriers that may prevent pregnant people from attending in-person appointments. We also discuss the structural inequities in digital access and literacy in the context of program implementation. (Author)

2025-00732

Correlation between Knowledge, Preventive Behaviors, and COVID-19 Anxiety with Perceived Stress among Pregnant Women: A Cross-sectional Study. Aalaei M, Abbasalizadeh F, Sarvaran K, et al (2024), Journal of Midwifery & Reproductive Health vol 12, no 1, January 2024, pp 4104-4113

Background & aim: Psychological and behavioral factors caused by COVID-19 adversely affect physical and mental well-being, especially in pregnant women. The current study was performed to evaluate the correlation between knowledge, preventive behaviors, and COVID-19 anxiety with perceived stress among pregnant women.
Methods: This cross-sectional study was conducted among 290 pregnant women referring to two hospitals in Tabriz, Iran in the second six months of 2021. All participants were selected through convenient sampling. Data were collected using demographic-obstetric questionnaire, knowledge of COVID-19 questionnaire, preventive behaviors scale against COVID-19, the Corona Disease Anxiety Scale (CDAS), and the Cohen Perceived Stress Scale (PSS). Data were analyzed by SPSS software version 24 and descriptive and interpretive statistics.
Results: Based on the results, 23.8% and 38.6% of participants had severe anxiety and stress, respectively. There was a direct and significant correlation between knowledge and preventive behaviors ($r=0426$, $P<0.001$). The results of univariate regression showed that the preventive behaviors and COVID-19 anxiety explain 1.7% ($\beta=0.130$, $SE=0.123$, $P=0.027$) and 5.51% ($\beta=0.742$, $SE=0.034$, $P<0.001$) of stress changes, respectively. In univariate linear regression, a moderate correlation was observed between the three variables including employment status, preventive behaviors, and anxiety with perceived stress ($R=0.557$), and anxiety had the highest regression coefficient ($\beta=-0.665$).
Conclusion: The current study highlighted the importance of measuring knowledge, preventive behaviors, COVID- 19 anxiety and perceived stress in pregnant women during COVID-19 pandemic. This assessment will assist healthcare providers in delivering appropriate services during the future pandemics. (Author)
Full URL: https://doi.org/10.22038/jmrh.2023.66579.1942

2025-00727

The Incidence Rate of COVID-19 and its Relationship with Maternal and Neonatal Outcomes among Pregnant Women during Iran's First and Second Waves: A Multicenter Cohort Study in Tehran. Mohaghegh Z, Taghizadeh Z, Abedi P, et al (2024), Journal of Midwifery & Reproductive Health vol 12, no 1, January 2024, pp 4104-4113

Background & aim: COVID-19 infection may adversely affect pregnancy outcomes. We aimed to assess the incidence

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rate of the COVID-19 virus and its effect on maternaland neonatal outcomes.
Methods: This was a cohort study in which a number of health-care centers in Tehran province were randomly selected, and all pregnant women referring to these centers were screened for COVID-19 from April 2020 to July 2020. Out of 15520 pregnant women, 263 individuals infected with COVID-19, who were followed until delivery. To collect the data, a demographic and obstetric characteristics questionnaire and a maternal and neonatal outcome checklist were used. Data analysis was done by SPSS version 22 using the Chi-square test, independent t-test, and logistic regression model.
Results: The incidence of COVID-19 among participants was 17 per 1000 (95% CI: 15-19). Women with a higher BMI (OR = 1.198, CI =1.003-1.431, P = 0.047) and lower blood oxygen level (OR= 0.886, CI: 0.808-.970, P=.009) were more likely to have adverse pregnancy outcomes. Preterm labor (18.3%) was the most common outcome of pregnancy, followed by stillbirth (0.8%), ICU admission (3.0%), maternal mortality (1.1%), need to mechanical ventilation (1.5%) and preeclampsia 1(0.38). Regarding neonatal outcomes, neonatal COVID-19 was seen in 1.9% of cases, NICU admission in 15.2%. Neonatal mortality without COVID-19 in 2.3%. The majority of neonates with complications were male (29.1% vs. 21.5%, (P= 0.002).
Conclusion: Pregnant women had a lower COVID-19 incidence rate than the general population, but when infected, they were at risk for poor maternal and neonatal outcomes. (Author)
Full URL: https://doi.org/10.22038/jmrh.2022.66814.1951

2025-00703

The Effect of Smartphone-based Self-care Education on Awareness, Perceived Severity and Self-care Behaviors in Pregnant Women at Risk of Preterm Birth during COVID-19 Pandemic: A Quasi-Experimental Study. Shahriar SS, Navidian A, Khazaeian S (2024), Journal of Midwifery & Reproductive Health vol 12, no 1, January 2024, pp 4033-4044

Background & aim: The fear of being affected by COVID-19 has significantly reduced perinatal care. The current study aimed to evaluate the impact of smartphone-based self-care education on awareness, perceived severity, and self-care of pregnant women at risk of preterm birth during a covid-19 pandemic.
Methods: This quasi-experimental study was conducted on 115 pregnant women at risk of preterm birth that was assigned into intervention (N=58) and control (N=57) groups. The research tools included the demographic and preterm delivery screening checklist, awareness, perceived severity, and self-care questionnaires. The intervention group received training files using WhatsApp software within two weeks. The control group received no intervention. The questionnaires were completed before (T1), 8 (T2) and 12 (T3) weeks after the implementation of the intervention in two groups. ANOVA, ANCOVA, independent t-test, chi-square, and Fisher's exact test were used to analyze the data using SPSS software (version 24)
Results: No significant difference was found between baseline data (T1) before the intervention in two groups ($p>0.05$); while after the intervention, a significant increase was observed in the mean score of awareness at T2 and T3 compared to T1 ($P<0.001$) as well as self-care at T2 and T3 compared to T1 ($P<0.001$). Also, a significant decrease was observed in the mean score of perceived severity ($P<0.001$) in the intervention and control group over time.
Conclusion: It appears that distance learning to provide care for pregnant women and informing healthcare providers about their condition can be useful, especially for those who are at risk during pandemics. (Author)
Full URL: https://doi.org/10.22038/jmrh.2023.69178.2033

2025-00643

Efficacy of Individual Supportive Counseling on Stress Caused by COVID-19 in Pregnant Women. Eteraf M, Haghighi NB, Far MF, et al (2023), Journal of Midwifery & Reproductive Health vol 11, no 4, October 2023, pp 3928-3936

Background & aim: Pregnant women experience some levels of stress during pregnancy. COVID-19 was able also increase their stress. This study performed to evaluate the efficacy of supportive counseling on stress caused by COVID-19 in pregnant women.
Methods: This clinical trial performed on 97 pregnant women 49 in the intervention and 48 in the control group) referred to comprehensive healthcare centers of Gorgan, Iran in 2021. Data collection tools included an electronic questionnaire containing demographic, fertility-related data, and questions related to the COVID-19 pandemic as well

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as the coronavirus stress scale. The intervention group received three supportive counseling sessions by 60-90 minutes weekly. The control group received only routine pregnancy care. Data were analyzed by independent t-test, Chi-square test, and Fisher's exact tests using SPSS (version 24).
Results: The results showed that before the intervention, there was no significant difference in the mean score of stress in the intervention group (48.28 ± 5.976) and the control group (47.08 ± 5.158) (P=0.258). However, four weeks after the intervention, the mean score of stress in the intervention group (41.77±5.296) had a significant decrease compared to the control group (46.29±5.220) (P<0.001).
Conclusion: The level of stress during the COVID-19 pandemic is high and providing supportive counseling can reduce pregnancy-specific stress and increase healthy behaviors. Supportive counseling can be used as an effective way to reduce the adverse consequences of stress during pregnancy. (Author)
Full URL: https://doi.org/10.22038/jmrh.2023.65432.1912

2025-00620

The Effect of Educational Intervention with Mobile Health Technology on COVID-19 Induced Stress among Pregnant Women: A Randomized Controlled Trial. Rostamikia Z, Khajavian N, Bilandi RR, et al (2023), Journal of Midwifery & Reproductive Health vol 11, no 3, July 2023, pp 3782-3793

Background & aim: The spread of COVID-19 has increased the stress level in pregnant women. The present study was performed to determine the effect of a mobile-based health educational intervention on the stress induced by the COVID-19 pandemic among pregnant women.
Methods: This randomized controlled trial study was carried out on 80 pregnant women (40 sampleintervention and 40 control) referred to Gonabad Comprehensive Urban Health Service Centers from October to December 2021 who were selected using stratified random sampling. Data collection tools included demographic questionnaire (12 questions) and the valid and reliable questionnaire of the Corona Stress Scale (CSS-18). The questionnaires were filled out through self-administered method svia the Porsline platform in three stages: before, immediately after, and one month after the intervention. The intervention group received five 30-minute education sessions as twice a week based on the latest Ministry of Health maternity and neonatal health guidelines. The control group received educational content in PDF format. Data were analyzed by Wilcoxon, Benferroni, Mann-Whitney, and independent t-tests using SPSS (version 16).
Results: The mean COVID-19 stress score before the intervention was not statistically significant in the two groups (P= 0.92). After the intervention, the mean stress score of COVID-19 in the intervention group was estimated 48.12 ±12.24, which was significantly lower than the control group (57.02 ± 15.99) (P<0.001).
Conclusion: Mobile-based education intervention reduces COVID-19 stress in pregnant women. It is suggested that this approach be implemented for the provision of healthcare to pregnant women during the COVID-19 pandemic. (Author)
Full URL: https://doi.org/10.22038/jmrh.2022.66480.1940

2025-00607

The Effect of Telemedicine-Based Massage Training to Spouses on the Resilience of Pregnant Women during the Coronavirus Pandemic. Marvi FJ, Abedian Z, Malayjerdi R (2023), Journal of Midwifery & Reproductive Health vol 11, no 2, April 2023, pp 3672-3681

Background & aim: Pregnancy due to hormonal changes can cause psychological changes such as increased depression, stress, anxiety and decreased resilience, which could be more complicated during coronavirus pandemic. Massage may be beneficial for a number of mental health conditions. The aim of this study was to determine the effect of telemedicine-based massage training to spouses on the resilience of pregnant women during the coronavirus pandemic.
Methods: This randomized clinical trial was performed on 120 pregnant women attending health care centers in Mashhad, Iran by available sampling method in 2021. Spouses of pregnant women in the intervention group received massage training by telemedicine. The intervention group performed the trained items for their pregnant wives three times a week for four weeks. The control group received only routine pregnancy care. Data collection tools included

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Conor and Davidson resilience questionnaires and DASS-21 questionnaires which were completed in person before, immediately after and 4 days following the intervention. Data were analyzed by SPSS statistical software (version 24) and descriptive and analytical statistical methods.
Results: At the beginning of the study, resilience score did not differ significantly between the two groups (P=0.235). But immediately after and 4 days after the intervention, there were significant changes in resilience scores (P <0.001).
Conclusion: The results of this study showed that teaching telemedicine-based massage to spouses during the coronavirus pandemic can increase the resilience of pregnant women. Since resilience is one of the components of mental health, increasing the resilience of pregnant women improves their mental health. (Author)
Full URL: https://doi.org/10.22038/jmrh.2022.63454.1836

2025-00605

Pregnancy Outcomes in Women With COVID-19: A Case-Control Study in Iran. Alibakhshi F, Javadnoori M, Ghanbari S (2023), Journal of Midwifery & Reproductive Health vol 11, no 2, April 2023, pp 3664-3671

Background & aim: Little is known about the effects of COVID-19 on pregnancy outcomes. The present study was performed to investigate maternal and perinatal outcomes in pregnant women affected by COVID-19.
Methods: This case-control study was conducted on 264 pregnant women, including 132 infected (case group) and 132 uninfected pregnant women with COVID-19 (control group), using a retrospective record review design and matched sampling in three hospitals in Hamadan Province, Iran.Pregnant women with a positive COVID-19 test were identified through the registration system for COVID-19 in the health centers. The two groups were matched in terms of gestational age and maternal age. Data were collected from February 2020 to October 2021 using a questionnaire consisting of demographic and obstetric data, maternal and perinatal outcomes, and information about COVID-19 detection and treatment. Data were analyzed by SPSS software (version 22).
Results: A high percentage of the case group lived in urban areas (p=0.026). In the case group, newborn hospitalization and death were significantly higher (p=0.032). No differences were observed between the two groups in other maternal or perinatal outcomes. Although there was one maternal death, two HELLP syndromes, and two cases of pregnancy cholestasis in the case group, however, they were not statistically significant.
Conclusion: Although most maternal and perinatal outcomes were not statistically significant in COVID-19 pregnancies, some important outcomes, especially maternal death, occurred only in the case group. More evidence is needed to confirm whether COVID-19 can negatively affect pregnancy outcomes. (Author)
Full URL: https://doi.org/10.22038/jmrh.2022.63589.1844

2025-00570

Gestational weight gain during pregnancy is the risk factor for Omicron infection: a retrospective case–control study.
Yao L, Zhang P, Zhou J, et al (2024), BMC Pregnancy and Childbirth vol 24, no 818, December 2024

Background
It remains unclear whether gestational weight gain (GWG) during pregnancy is associated with Omicron infection in pregnant women.

Objective
To investigate whether gestational weight gain during pregnancy is associated with an increased risk of Omicron infection.

Methods
This is a retrospective case–control study of pregnant women from The Third Affiliated Hospital of Sun Yat-sen University from December 1 to 31, 2022. Pregnant women infected with Omicron were compared to those uninfected using chi-square statistics for categorical variables and t-tests or ANOVA for continuous variables. Multivariable logistic regression, along with subgroup analyses, was used to investigate the association between gestational weight gain during pregnancy and Omicron infection.

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Results

Our study included 369 pregnant women who met the eligibility criteria. The proportion of pregnant women in the term, infected and uninfected with Omicron was 113(30.6%) and 256(69.4%). Classified pregnant women according to GWG during pregnancy, GWG during pregnancy above IOM was significantly associated with an increased risk of Omicron infection (P = 0.006). After adjusting for demographic factors and pregnancy complications, this association was particularly notable (OR = 2.55, 95%CI = 1.35–4.85, P = 0.004). Classified pregnant women according to pregestational BMI, in normal-weight pregnant women, GWG during pregnancy above IOM was significantly associated with an increased risk of Omicron infection (P = 0.01). After adjusting for demographic factors and pregnancy complications, this association was particularly notable (OR = 2.56, 95%CI = 1.24–5.31, P = 0.01).

Conclusion

Among women with normal weight, gestational weight gain during pregnancy above IOM was an independent risk factor for Omicron infection. (Author)

Full URL: https://doi.org/10.1186/s12884-024-07025-6

2025-00340

Neurodevelopment in the First 2 Years of Life Following Prenatal Exposure to Maternal SARS-CoV-2 Infection.

Vrantsidis DM, van de Wouw M, Hall ERM, et al (2024), JAMA Network Open vol 7, no 11, November 2024, e2443697

Importance The effects of prenatal exposure to SARS-CoV-2 infection on child development throughout the first 2 years of life are unknown.

Objective To evaluate whether prenatal exposure to SARS-CoV-2 infection was associated with child neurodevelopmental outcomes during the first 2 years of life.

Design, Setting, and Participants This cohort study used data from the longitudinal, population-based pan-Canadian Pregnancy During the COVID-19 Pandemic cohort, which recruited participants from April 2020 to July 2022. Children were categorized as exposed to prenatal SARS-CoV-2 infection if their birthing parent had a positive polymerase chain reaction test performed by a health authority or as a healthy negative comparison if their birthing parent did not have SARS-CoV-2 antibodies in their postpartum dried blood spot sample.

Exposure Prenatal SARS-CoV-2 infection.

Main Outcomes and Measures The birthing parent reported on their child's temperament at ages 6 and 24 months, developmental milestones at ages 12 and 24 months, and social-emotional milestones at ages 12 and 24 months.

Results A total of 896 children were included, with 96 children who had been exposed to a prenatal SARS-CoV-2 infection (mean [SD] gestational age at birth, 39.20 [1.50] weeks; 45 [47%] male) and 800 were healthy negative comparisons (mean [SD] gestational age at birth, 39.47 [1.54] weeks; 388 [49%] male). In analyses of covariance adjusted for prepregnancy medical conditions and household socioeconomic status, prenatal exposure to SARS CoV-2 infection was associated with slightly higher regulatory control scores, indicating more regulation, at age 6 months (difference in means, 0.19 [95% CI, 0.02-0.36]; P = .03; ηp2 = 0.01). No significant differences were observed for the other neurodevelopmental outcomes. In mixed models adjusted for the same covariates that aimed to examine change in outcomes over time, prenatal SARS-CoV-2 infection exposure was not associated with developmental change in any neurodevelopmental outcomes between ages 6 and 24 months.

Conclusions and Relevance In this longitudinal cohort study of multiple aspects of child neurodevelopment between ages 6 and 24 months, negligible associations between prenatal exposure to SARS-CoV-2 infection and child outcomes were observed. Follow-up research is warranted to determine whether these predominantly null effects persist into later childhood. (Author)

Full URL: https://doi.org/10.1001/jamanetworkopen.2024.43697

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2024-14639

In Utero Exposure to Maternal COVID-19 and Offspring Neurodevelopment Through Age 24 Months. Jaswa EG, Huddleston HG, Lindquist KJ, et al (2024), JAMA Network Open vol 7, no 10, October 2024, e2439792

Importance In utero exposure to maternal infections has been associated with abnormal neurodevelopment among offspring. The emergence of a new, now endemic infection (SARS-CoV-2) warrants investigating developmental implications for exposed offspring.

Objective To assess whether in utero exposure to maternal COVID-19 is associated with abnormal neurodevelopmental scores among children ages 12, 18, and 24 months.

Design, Setting, and Participants Data were ascertained from the ASPIRE (Assessing the Safety of Pregnancy in the Coronavirus Pandemic) trial, a prospective cohort of pregnant individuals aged 18 years or older who were enrolled before 10 weeks' gestation and their children. Individuals were recruited online from May 14, 2020, to August 23, 2021, using the Society for Assisted Reproductive Technology and BabyCenter, an online media platform. Participants from all 50 states and Puerto Rico completed activities remotely.

Exposure In utero exposure to COVID-19.

Main Outcomes and Measures Birth mothers completed the Ages & Stages Questionnaires, Third Edition, a validated screening tool for developmental delays, at 12, 18, and 24 months' post partum. A score below the cutoff in any domain (communication, gross motor, fine motor, problem-solving, and social skills) was considered an abnormal developmental screen (scores range from 0 to 60 in each domain, with higher scores indicating less risk for neurodevelopmental delay).

Results The cohort included 2003 pregnant individuals (mean [SD] age, 33.3 [4.2] years) enrolled before 10 weeks' gestation and who completed study activities; 1750 (87.4%) had earned a college degree. Neurodevelopmental outcomes were available for 1757 children at age 12 months, 1522 at age 18 months, and 1523 at age 24 months. The prevalence of abnormal screens for exposed vs unexposed offspring at age 12 months was 64 of 198 (32.3%) vs 458 of 1559 (29.4%); at age 18 months, 36 of 161 (22.4%) vs 279 of 1361 (20.5%); and at age 24 months, 29 of 151 (19.2%) vs 230 of 1372 (16.8%). In an adjusted mixed-effects logistics regression model, no difference in risk of abnormal neurodevelopmental screens was observed at age 12 months (adjusted risk ratio [ARR], 1.07 [95% CI, 0.85-1.34]), age 18 months (ARR, 1.15 [95% CI, 0.84-1.57]), or age 24 months (ARR, 1.01 [95% CI, 0.69-1.48]). Supplemental analyses did not identify differential risk based on trimester of infection, presence vs absence of fever, or breakthrough infection following vaccination vs primary infection.

Conclusions and Relevance In this cohort study of pregnant individuals and offspring, exposure to maternal COVID-19 was not associated with abnormal neurodevelopmental screening results through 24 months' post partum. Continued study of diverse groups of children is needed because, among other factors, evidence suggests sensitivity of the developing fetal brain to maternal immune activation. (Author)

Full URL: https://doi.org/10.1001/jamanetworkopen.2024.39792

2024-14169

Experiences of women accessing UK maternity care during the COVID-19 pandemic. Adam C (2024), MIDIRS Midwifery Digest vol 34, no 4, December 2024, pp 346-351

Objective: The COVID-19 pandemic had a major impact on maternity service delivery throughout the UK. This literature review aims to examine the lived experiences of women accessing care during the start of the first UK lockdown in March 2020 until the end of the third lockdown in March 2021.

Methods: A systematic literature review was undertaken using a patient, intervention, outcome (PIO) framework to

identify eligible studies for inclusion. The outcomes from these studies were then examined to find common themes. Results/findings: Nine primary pieces of qualitative literature were eligible for inclusion and six broad themes were then identified. Although some benefits were expressed, such as the mitigating effect of staying at home in reducing virus transmission, women
overwhelmingly voiced many negative experiences affecting their journey through pregnancy and beyond. Conclusion: Concerns over transmission of coronavirus often overlooked a holistic perspective on women's care needs. It is essential that future service delivery is informed by the voice and needs of the woman. It is also vital that further research is conducted on women in Black communities, as well as other ethnicities and under-represented groups already at increased risk of health inequalities, to understand the effects of the pandemic
and its impact on these disadvantaged groups. (Author)

2024-13934

Adequate antenatal care service utilizations after the onset of COVID-19 pandemic in Ethiopia: a systematic review and meta-analysis. Wondmeneh TG, Tadesse ZS (2024), Frontiers in Public Health 15 November 2024, online

Background: The world faces great difficulty in continuing to provide essential maternity health care after the onset of COVID-19 pandemic Many women have trouble accessing maternity healthcare due to fear of infection. A decline in the utilization of maternity health services is suggested to worsen adequate antenatal care service utilization. Thus, this study aimed to determine the pooled estimate of adequate antenatal care service utilization after the onset of COVID-19 in Ethiopia.

Methods: The searching of articles was carried out on Web of Science, Scopus, PubMed, CINHAL, Google Scholar, African journals online, and the institutional repository of Ethiopian universities. Using a Microsoft Excel standardized spreadsheet, the data were extracted. A random effect model was used to determine a pooled estimate of adequate antenatal care utilization. I2 statistics were used to quantify the amount of heterogeneity. The evidence of publication bias was examined using Egger's regression test and a visual inspection of the funnel plot. Subgroup and sensitivity analyses were also carried out.

Results: Finally, this systematic review and meta-analysis included 11 eligible articles. The overall pooled estimate of adequate antenatal care service utilization after the onset of COVID-19 pandemic in Ethiopia was 46.28% (95% CI: 35.32%−57.26%). There is a substantial amount of heterogeneity between studies (I2 = 99.07%, $p < 0.001$). Pregnant women who visited antenatal care early were 10.9 times more likely to have adequate antenatal care utilization than those without early visits (AOR = 10.93, 95% CI: 7.2–14.66).

Conclusion: In this review, the percentage of women who utilized adequate antenatal care after the onset of COVID-19 pandemic in Ethiopia was less than half. Early antenatal care visit is an important factor to achieve adequate antenatal care service utilizations.

Systematic review registration: : CRD42023495279. (Author)
Full URL: https://doi.org/10.3389/fpubh.2024.1395190

2024-13838

No impact of COVID-19 at delivery on maternal mortality or infant adverse birth outcomes in Botswana during the Omicron era. Banga J, Jackson-Gibson M, Diseko M, et al (2024), PLoS ONE vol 19, no 9, September 2024, e0310980

SARS-CoV-2 infection during pregnancy was associated with maternal mortality and adverse birth outcomes in the pre-Omicron era, including a stillbirth rate of 5.6% in Botswana. We re-evaluated these outcomes in the Tsepamo Study during the Omicron era. We assessed maternal mortality and adverse birth outcomes for all singleton pregnancies from mid-November 2021 (the start of the Omicron era) to mid-August 2022 at nine Tsepamo sites, among individuals with documented SARS-CoV-2 screening PCR or antigen tests and known HIV status. Of 9,705 women routinely screened for SARS-CoV-2 infection at delivery (64% of deliveries at these sites), 373 (3.8%) tested positive.

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Women with HIV were as likely to test positive for SARS-CoV-2 (77/1833, 4.2%) as women without HIV (293/6981, 4.2%) (p = 1.0). There were 5 recorded maternal deaths (0.03%), one occurring in a woman with a positive SARS-CoV-2 test result. In contrast, maternal mortality was 3.7% and 0.1% in those with and without SARS-CoV-2, respectively, during the pre-Omicron era. In the Omicron era, there were no differences among infants exposed or unexposed to SARS-CoV-2 in overall adverse birth outcomes (28.1% vs 29.6%; aRR 1.0, 95%CI 0.8-1.1), severe adverse birth outcomes (11.9 vs 10.6%; aRR 1.1, 95%CI 0.8-1.5), preterm delivery (15.1% vs 14.9%; aRR 1.0, 95%CI 0.8-1.3), or stillbirth (1.9% vs 2.3%; aRR 0.8, 95%CI 0.4-1.7). Adverse outcomes among those exposed to both HIV and SARS-CoV-2 were similar to those exposed to HIV alone (31.2% vs. 33.1%; aRR 0.9, 95%CI 0.6-1.3; p = 0.5). Maternal mortality was far lower in Botswana during the Omicron era than in the pre-Omicron era, and adverse birth outcomes were no longer significantly impacted by exposure to SARS-CoV-2 either overall or with HIV co-exposure. Increased population immunity to SARS-CoV-2, less stress on the hospital systems in the Omicron era, and possible differences in viral pathogenicity may combine to explain these findings.

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Full URL: https://doi.org/10.1371/journal.pone.0310980

2024-13673

Assessing the safety and pharmacokinetics of casirivimab and imdevimab (CAS+IMD) in a cohort of pregnant outpatients with COVID-19: results from an adaptive, multicentre, randomised, double-blind, phase 1/2/3 study.

Norton TD, Thakur M, Ganguly S, et al (2024), BMJ Open vol 14, no 10, September 2024, e087431

Objective Pregnant women with COVID-19 are at elevated risk for severe outcomes, but clinical data on management of these patients are limited. Monoclonal antibodies, such as casirivimab plus imdevimab (CAS+IMD), have proven effective in treating non-pregnant adults with COVID-19, prompting further evaluation in pregnant women.

Methods A phase 3 portion of an adaptive, multicentre, randomised, double-blind, placebo-controlled trial evaluated the safety, clinical outcomes, pharmacokinetics and immunogenicity of CAS+IMD (1200 mg or 2400 mg) in the treatment of pregnant outpatients with COVID-19 (NCT04425629). Participants were enrolled between December 2020 and November 2021, prior to the emergence of Omicron-lineage variants against which CAS+IMD is not active. Safety was evaluated in randomised participants who received study drug (n=80); clinical outcomes were evaluated in all randomised participants (n=82). Only two pregnant participants received placebo, limiting conclusions regarding treatment effect. Infants born to pregnant participants were followed for developmental outcomes ≤1 year of age.

Results In pregnant participants, CAS+IMD was well tolerated, with no grade ≥2 hypersensitivity or infusion-related reactions reported. There were no participant deaths, and only one COVID-19–related medically attended visit. Although two pregnancies (3%) reported issues in the fetus/neonate, they were confounded by maternal history or considered to be due to an alternate aetiology. No adverse developmental outcomes in infants ≤1 year of age were considered related to in utero exposure to the study drug. CAS+IMD 1200 mg and 2400 mg rapidly and similarly reduced viral loads, with a dose-proportional increase in concentrations of CAS+IMD in serum. Pharmacokinetics were consistent with that reported in the general population. Immunogenicity incidence was low.

Conclusion CAS+IMD treatment of pregnant outpatients with COVID-19 showed similar safety, clinical outcomes and pharmacokinetic profiles to that observed in non-pregnant adults. There was no evidence of an impact on developmental outcomes in infants ≤1 year of age. (Author)
Full URL: https://doi.org/10.1136/bmjopen-2024-087431

2024-13658

Impact of the COVID-19 pandemic on maternal, neonatal and child health service utilisation, delivery and health

outcomes in Gauteng province, South Africa: an interrupted time series (ITS) analysis. Fonka CB, Khamisa N, Worku E, et al (2024), BMJ Open vol 14, no 10, September 2024, e090645

Background Gauteng was one of the provinces in South Africa most hit by COVID-19. However, there has been no assessment of the pandemic's impact on essential maternal, neonatal and child health (MNCH) services in Gauteng, for planning against future emergencies. This study sought to assess the impact of the COVID-19 pandemic on essential MNCH service utilisation, delivery and health outcomes in Gauteng province.

Methods We employed a quasi-experimental interrupted time series (ITS) study design, using the District Health Information System (DHIS) data set to evaluate the impact of COVID-19 on eight key MNCH indicators between March 2019 to February 2021. Using Stata V.17.0 and 5% alpha, a segmented linear regression (ITS) model quantified the trends of the indicators before COVID-19 (March 2019 to February 2020) (β1), the immediate change in level due to the March 2020 lockdown (β2), the post-lockdown (March 2020 to February 2021) trend (β4) and the change in gradient from before to after the lockdown (β3).

Results COVID-19 lockdown exerted a significant decline in primary healthcare headcount<5 years (n) (β2= −60 106.9 (95% CI, −116 710.4; −3503.3), p=0.039); and postnatal care visits within 6 days (rate) (β2=−8.2 (95% CI, −12.4; −4.1), p=0.001). Antenatal care first visits before 20 weeks (rate) declined during COVID-19 (β3=−0.4 (95% CI, −0.7; −0.1), p=0.013) compared with the pre-COVID-19 period. COVID-19 adverse effects on service delivery (measles second dose coverage and fully immunised<1 year) and health outcomes (facility deaths 0–6 days, maternal mortality ratio and pneumonia case fatality<1 year) were insignificant. While some indicators post-lockdown attempted to recover, others deteriorated.

Conclusion In Gauteng province, the COVID-19 pandemic significantly disrupted essential MNCH service utilisation, particularly during the March 2020 lockdown. The mechanism of MNCH service disruption by COVID-19 was induced by both supply and demand services. It is imperative to strike a balance between maintaining routine healthcare services and managing an outbreak. (Author)

Full URL: https://doi.org/10.1136/bmjopen-2024-090645

2024-13651

Comparison of Maternal and Infant Outcomes in SARS-CoV-2 Infected Pregnancies and Contemporaneous General Population Pregnancies From British Columbia. Fu W, McClymont E, Av-Gay G, et al (2024), JOGC [Journal of Obstetrics and Gynaecology Canada] vol 46, no 10, October 2024, 102631

This article is a piece of research correspondence detailing a national surveillance program on SARS-CoV-2 in pregnancy that was initiated at the beginning of the pandemic in Canada. (JM)

Full URL: https://doi.org/10.1016/j.jogc.2024.102631

2024-13641

An analysis of virtual triage utilization by pregnant women prior to and during the COVID-19 pandemic. Jaszczak J, Gellert GA, Gellert GL, et al (2024), Frontiers in Global Women's Health 31 October 2024, online

Background: To analyze the characteristics of blood metabolites within 24 h after birth in preterm infants with bronchopulmonary dysplasia (BPD) and to identify biomarkers for predicting the occurrence of BPD.

Methods: Dried blood spots (DBS) were collected at birth from preterm infants with gestational age (GA) of less than 32 weeks in the cohort. The infants were divided into the BPD group and non-BPD group based on whether they eventually developed BPD. Dried blood spot filter papers were prepared from venous blood collected within the first 24 h of life. Metabolites were measured using liquid chromatography-tandem mass spectrometry (LC-MS/MS) and analyzed using the R software package.

Results: DBS samples from 140 infants with the GA < 32 weeks were used in the study, with 4 infants who died being

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excluded. Among the remaining 136 preterm infants, 38 developed BPD and 98 did not. To control for GA differences, we conducted a subgroup analysis. In the GA 24+4–27+6 weeks subgroup, we observed a significant decrease in histidine levels and the ornithine/citrulline ratio in the BPD group. Additionally, the ratios of acylcarnitines C3/C0 and C5/C0 were also significantly reduced.

Conclusions: Metabolic markers in DBS within 24 h after birth are promising for predicting the occurrence of BPD in preterm infants with GA < 28 weeks.

Clinical Trial Registration: [https://www.chictr.org.cn/], identifier [ChiCTR2100048293, ChiCTR2400081615]. (Author)
Full URL: https://doi.org/10.3389/fgwh.2024.1423993

2024-13592

Women's suggestions on how to improve the quality of maternal and newborn care: A qualitative analysis from the IMAgiNE EURO survey in Italy during the two years of the COVID-19 pandemic. Fumagalli S, Nespoli A, Iannuzzi L, et al (2024), European Journal of Midwifery vol 8, October 2024, p 62

Introduction:
Collecting women's views and suggestions for improving quality of maternal–newborn care (QMNC) is a crucial aspect of maternity care evaluation often overlooked in Italy and globally. Childbearing women experienced numerous challenges during the COVID-19 pandemic including the rapid and significant reorganization of maternity services and care. Their perspective on what to prioritize for QMNC improvement is hence pivotal. The aim of this study was to explore maternal suggestions for QMNC improvement from women who gave birth during the two years of the COVID-19 pandemic.

Methods:
Data were collected from an open-ended question included in a validated online questionnaire administered to mothers who gave birth in an Italian hospital between November 2020 to March 2022. The responses were analyzed using thematic analysis and mapped against the WHO Standards for improving QMNC and the WHO Framework of QMNC.

Results:
The thematic analysis identified five main themes from the 2017 responses: 1) Support for mothers during the postnatal period; 2) Better use of resources; 3) Improvement of the maternity environment; 4) Reconsideration of organizational aspects; and 5) Guarantee of respectful practices. Women commented on all dimensions of the WHO framework except for two provision of care subdomains 'actionable information and functional referral systems'.

Conclusions:
This is the first qualitative study in Italy focusing on women's suggestions for improving QMNC during the COVID-19 pandemic. Its findings can be used to inform what aspects of QMNC need improvement in Italy. Collection of women's views should be incorporated in routine monitoring of the QMNC, and data should be used for quality improvement purposes. (Author)
Full URL: https://doi.org/10.18332/ejm/192143

2024-13526

Birth Outcomes and Prenatal Care Use in the U.S. During the COVID-19 Pandemic in 2020 and 2021. Lyu W, Wehby GL (2024), Birth 11 October 2024, online

Background
The COVID-19 pandemic has posed substantial social and economic disruptions that may have had adverse effects on maternal and infant health. This study examines the changes in birth outcomes and prenatal care use during the COVID-19 pandemic in 2020 and 2021 compared to pre-pandemic years.

Methods

Data come from birth certificates from the U.S. Vital Statistics Natality Files. The analytical sample includes 18,678,327 births in the 50 states and Washington, DC between 2017 and 2021. An event study is employed to examine changes in multiple birth outcomes and prenatal care use over years adjusting for demographic/socioeconomic characteristics and state of residence.

Results

There were very small changes in birth outcomes during pandemic years in 2020 and 2021. Specifically, low birth weight odds were lower in 2020 (OR = 0.99; 95 CI: 0.98–0.99) but higher in 2021 (OR = 1.03; 95% CI: 1.03–1.04) compared to 2019. C-section odds were higher in 2021 (OR = 1.01, 95% CI: 1.002–1.008) than in 2019. The mean number of prenatal visits in both 2020 and 2021 relative to 2019 was lower by about 0.3 visits (95% CI: −0.31 to −0.30 in 2021).

Conclusion

Overall, there is no evidence of broad pandemic effects on low birth weight and preterm birth in 2020–2021. (Author)

2024-13471

Trends in maternal body mass index, macrosomia and caesarean section in first-time mothers during the pandemic: a multicentre retrospective cohort study of 12 Melbourne public hospitals. Goldsack AJ, Marzan MB, Rolnik DL, et al (2024), BMC Pregnancy and Childbirth vol 24, no 706, October 2024

Objective

To compare specific perinatal outcomes in nulliparas with a singleton infant in cephalic presentation at term, with and without exposure to the COVID-19 pandemic during pregnancy. We hypothesised that the pandemic conditions in Melbourne may have been an independent contributor to trends in maternal Body Mass Index ≥ 25 kg/m2, macrosomia and caesarean section.

Design

Multi-centre retrospective cohort study and interrupted time-series analysis.

Setting

Metropolitan Melbourne, Victoria.

Population

Singleton infants ≥ 20 weeks gestational age born between 1 January 2019 and 31 March 2022.

Main outcome measures

Rates of maternal Body Mass Index ≥ 25 kg/m2, macrosomia (birthweight ≥ 4000 g) and caesarean section.

Results

25 897 individuals gave birth for the first time to a singleton infant in cephalic presentation at term in the pre-pandemic cohort, and 25 298 in the pandemic-exposed cohort. Interrupted time-series analysis demonstrated no significant additional effect of the pandemic on pre-existing upward trends in maternal Body Mass Index ≥ 25 kg/m2, caesarean section or macrosomia. The rate of maternal Body Mass Index ≥ 25 kg/m2 was higher in the pandemic-exposed cohort compared with the pre-pandemic cohort, (45.82% vs. 44.58% respectively, p = 0.041) as was the overall rate of caesarean section (33.09% vs. 30.80%, p < 0.001). However, this increase in caesarean section was confined to individuals who had either an induction of labour or no labour. There was also a nonsignificant trend to higher rates of macrosomia in the pandemic-exposed cohort compared with the pre-pandemic cohort (8.55% vs. 7.99% respectively, p = 0.124).

Conclusions

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While rates of Body Mass Index ≥ 25 kg/m2, pre-labour caesarean section, and caesarean section following induction of labour were higher among pandemic-exposed nulliparas, these findings represented a continuation of pre-existing upward trends, with no significant independent contribution from the pandemic. These trends are forecast to continue, with long term implications for population health. (Author)

Full URL: https://doi.org/10.1186/s12884-024-06908-y

2024-13290

Pandemic-induced healthcare shifts: an observational analysis of maternal and neonatal outcomes in adolescent pregnancies. Grobeisen-Duque O, Villavicencio-Carrisoza O, Mora-Vargas CD, et al (2024), Frontiers in Medicine 15 October 2024, online

Introduction: The COVID-19 pandemic caused widespread changes in healthcare delivery, particularly affecting vulnerable populations such as pregnant adolescents. These patients faced additional challenges, including developmental and gestational changes, stress from isolation, and altered healthcare access, which may have impacted the incidence and prevalence of maternal and neonatal complications. This study aims to compare maternal and neonatal outcomes in adolescent pregnancies before and during the pandemic, focusing on how shifts in healthcare delivery influenced these outcomes.

Methodology: A retrospective cohort study was conducted, including 340 adolescent pregnant patients who received prenatal care at a tertiary care institution. Patients were divided into two groups: pre-pandemic (n = 209) and pandemic (n = 131). Maternal data, including pre-BMI and gestational weight gain (GWG), were collected to evaluate maternal and neonatal outcomes. Statistical analysis was performed using chi-square tests, Fisher's exact tests, and odds ratio (OR) calculations.

Results: The pandemic group showed a statistically significant increase in cesarean deliveries ($p = 0.002$; OR = 1.99) and cervicovaginitis, particularly caused by Ureaplasma spp. Conversely, the pre-pandemic group had higher rates of psychoactive substance use, maternal urinary tract infections, and neonatal transient tachypnea. In the pandemic group, overweight pre-gestational BMI and cervicovaginitis were more prevalent in patients with adequate GWG, while inadequate GWG was associated with an increased risk of urinary tract infection (UTI). A significant association between pre-gestational overweight/obesity and excessive GWG was also observed ($p < 0.05$).

Conclusion: The COVID-19 pandemic altered both healthcare delivery and maternal and neonatal outcomes in adolescent pregnancies. Changes in healthcare access, isolation, and shifts in medical management during the pandemic resulted in higher cesarean rates and infection rates among pregnant adolescents. These findings underscore the need for adaptable, resilient healthcare systems capable of maintaining comprehensive care even in the face of global crises. Further studies are needed to explore long-term effects on adolescent maternal and neonatal health. (Author)

Full URL: https://doi.org/10.3389/fmed.2024.1458719

2024-13248

Monitoring SARS-CoV-2 seroprevalence over time among pregnant women admitted to delivery units: Suitability for surveillance. Miyadahira MY, de Lourdes Brizot M, Alexander N, et al (2023), PLoS ONE vol 18, no 1, January 2023, e0280109

Objectives

To determine SARS-CoV-2 seroprevalence over time and risk factors among pregnant women at delivery in São Paulo, Brazil; and to evaluate the suitability of pregnant women as a sentinel population for SARS-CoV-2 serosurveillance.

Methods

Unselected consecutive pregnant women presenting at the labor ward of a single large hospital between July 20th 2020 to February 21st 2021 were enrolled and tested for SARS-CoV-2 serology using two assays: the rapid chromatic Wondfo One Step (for total IgA and IgG detection) and Roche Elecsys assay (detecting anti-nucleoprotein [N] IgG).

SARS-CoV-2 seroprevalence was computed as smooth spline function over time with 95% confidence intervals (CI). Risk factors were evaluated for positivity by each assay. We compared timepoint seroprevalence by the two assays with four concomitant community household surveys (HHS), in which the Roche assay was used, to determine the sensitivity and relevance of the pregnant women population as sentinel population.

Results

Overall SARS-CoV-2 seroprevalence was 28.9% (221/763) by Roche and 17.9% (137/763) by Wondfo. Reported symptoms experienced during pregnancy were all significantly correlated with being SARS-CoV-2 seropositive at delivery with any assay (with odds-ratios ranging from 3.0 [95% CI: 2.1–4.3] for coryza to 22.8 [95% CI: 12.3–46.6] for ageusia). Seropositivity by either assay was high in women at delivery in the early period of the pandemic (June 2020), compared with seropositivity in women from the concomitant HHS: 44.1% (95% CI: 21.8–66.4) for Roche, 54.1% (30.9–78.5) for Wondfo, versus 11.4% (95% CI: 9.2–13.6) for HHS. For later periods (October 2020 and January 2021), the seropositivity in women at delivery measured by Roche corresponded well with the prevalence found among women in the HHS using the same assay, whilst prevalence measured by Wondfo dropped.

Conclusions

Women at delivery represent a highly exposed and readily accessible population for sentinel surveillance of emerging infections such as SARS-CoV-2. (Author)

Full URL: https://doi.org/10.1371/journal.pone.0280109

2024-13137

COVID-19 in pregnancy: prevalence, management, and outcomes in a single large health system. Schulte A, Castro-Pearson S, Sidebottom A, et al (2024), Journal of Maternal-Fetal and Neonatal Medicine vol 37, no 1, 2024, 2409360

Objective

This study assessed the prevalence of SARS-CoV-2 positivity in a cohort of pregnant patients served by a single health system. Treatments and outcomes are compared by maternal SARS-CoV-2 status and COVID-19 symptomatology.

Methods

This was a retrospective cohort study of patients with delivery outcomes from March 2020-December 2021. SARS-CoV-2 positivity was defined by patients who had a positive test or COVID-19 diagnosis during pregnancy. Descriptive analysis compared demographics, medical management during pregnancy, and both perinatal and non-obstetric outcomes by SARS-CoV-2/COVID-19 status (negative, positive-asymptomatic, and positive-symptomatic).

Results

Of 24,310 pregnancies, 94.6% were negative, 3.9% were positive-asymptomatic, and 1.5% were positive-symptomatic. Non-delivery hospitalizations were highest among positive-symptomatic patients (16.8%), followed by positive-asymptomatic patients (3.9%) and lastly negative patients (2.7%) ($p < 0.001$). Likewise, Intensive Care Unit (ICU) admissions during an antepartum or delivery admission were higher for positive-symptomatic patients (13.0%) compared to positive-asymptomatic patients or negative patients (0.7% and 0.5%, respectively, $p < 0.001$). The rate of preterm birth was significantly higher in positive-symptomatic patients compared to positive-asymptomatic and negative patients (15.7% vs. 9.5% and 9.8%, respectively, $p = 0.002$). There were no statistically significant differences in rates of miscarriage or intrauterine fetal demise. Maternal readmission, administration of corticosteroids for fetal lung maturity, birthweight, and neonatal intensive care unit (NICU) admission were significantly affected by SARS-CoV-2 status.

Conclusion

Pregnant patients testing positive for SARS-CoV-2 were mostly asymptomatic and identified during routine screening. Symptomatic patients were significantly more likely to require hospitalization and ICU admission with some increase in adverse perinatal outcomes. (Author)

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Full URL: https://doi.org/10.1080/14767058.2024.2409360

2024-13117

"Tell us what's going on": Exploring the information needs of pregnant and post-partum women in Australia during the pandemic with 'Tweets', 'Threads', and women's views. Caddy C, Cheong M, Lim MSC, et al (2023), PLoS ONE vol 18, no 1, January 2023, e0279990

Introduction

The provision of maternity services in Australia has been significantly disrupted in response to the COVID-19 pandemic. Many changes were initiated quickly, often with rapid dissemination of information to women. The aim of this study was to better understand what information and messages were circulating regarding COVID-19 and pregnancy in Australia and potential information gaps.

Methods

This study adopted a qualitative approach using social media and interviews. A data analytics tool (TIGER-C19) was used to extract data from social media platforms Reddit and Twitter from June to July 2021 (in the middle of the third COVID-19 wave in Australia). A total of 21 individual semi-structured interviews were conducted with those who were, or had been, pregnant in Australia since March 2020. Social media data were analysis via inductive content analysis and interview data were thematically analysed.

Results

Social media provided a critical platform for sharing and seeking information, as well as highlighting attitudes of the community towards COVID-19 vaccines in pregnancy. Women interviewed described wanting further information on the risks COVID-19 posed to themselves and their babies, and greater familiarity with the health service during pregnancy, in which they would labour and give birth. Health providers were a trusted source of information. Communication strategies that allowed participants to engage in real-time interactive discussions were preferred. A real or perceived lack of information led participants to turn to informal sources, increasing the potential for exposure to misinformation.

Conclusion

It is vital that health services communicate effectively with pregnant women, early and often throughout public health crises, such as the COVID-19 pandemic. This was particularly important during periods of increased restrictions on accessing hospital services. Information and communication strategies need to be clear, consistent, timely and accessible to reduce reliance on informal and potentially inaccurate sources. (Author)

Full URL: https://doi.org/10.1371/journal.pone.0279990

2024-13112

Trends in the quality of maternal and neonatal care in Sweden and Norway as compared to 12 WHO European countries: A cross-sectional survey investigating maternal perspectives during the COVID-19 pandemic. Zaigham M, Linden K, Elden H, et al (2024), Acta Obstetricia et Gynecologica Scandinavica vol 103, no 12, December 2024, pp 2485-2498

Introduction

Maternal-neonatal healthcare services were severely disrupted during the COVID-19 pandemic in even high-income countries within the World Health Organization (WHO) European Region. The objective of this study was to compare trends in the quality of maternal and neonatal care (QMNC) in Sweden and Norway to 12 other countries from the WHO European Region during the COVID-19 pandemic, and to identify domains for improvement.

Material and Methods

This cross-sectional study included women giving birth in Europe from March 1, 2020 to December 31, 2022. Women answered an online, anonymous questionnaire which included 40 WHO Standard-based Quality Measures collectively scored as the total QMNC index (0–400) and separately in four subdomains (0–100): provision of care, experience of

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care, availability of human and physical resources, and reorganizational changes due to COVID-19. To assess reported QMNC changes over time, we used adjusted quantile regression models. ClinicalTrials.gov Identifier: NCT04847336.

Results

Of the 45151 women included in the study, 13 117 (29.1%) were from Sweden and Norway and 32034 (70.9%) from the 12 WHO European countries. The total QMNC index for Sweden and Norway (median: 325, IQR: 285–355) was higher than the 12 WHO European countries (median: 315, IQR: 265–350, $p < 0.001$) as were trends in QMNC index over time (Sweden and Norway median: 310–345; 12 WHO European countries median: 305–340). Sweden and Norway also had higher scores in three-of-four QMNC subdomains, with the 12 WHO European countries scoring higher only for reorganizational changes due to COVID-19. In adjusted quantile models of the total QMNC index, Sweden and Norway had higher scores, with largest differences in the lower quantiles ($p < 0.001$ in all percentiles).

Conclusions

Across Europe, there are significant gaps in the quality of maternal-neonatal healthcare services. Although women giving birth in Sweden and Norway reported higher QMNC scores in all subdomains except for "reorganizational changes due to COVID-19," there is room for improvement and shared learning across Europe. Policymakers should prioritize long-term investments in maternal and neonatal healthcare, ensuring that facilities are adequately equipped during public health crises and that all women have access to high-quality, evidence-based, equitable, and respectful care. (Author)

Full URL: https://doi.org/10.1111/aogs.14994

2024-12971

Cardiovascular diseases worsen the maternal prognosis of COVID-19. Testa CB, de Godoi LG, Bortolotto MRFL, et al (2023), PLoS ONE vol 18, no 2, February 2023, e0266792

Cardiovascular diseases (CVD) are a risk factor for severe cases of COVID-19. There are no studies evaluating whether the presence of CVD in pregnant and postpartum women with COVID-19 is associated with a worse prognosis. In an anonymized open database of the Ministry of Health, we selected cases of pregnant and postpartum women who were hospitalized due to COVID-19 infection and with data regarding their CVD status. In the SIVEP GRIPE data dictionary, CVD is defined as "presence of cardiovascular disease", excluding those of neurological and nephrological causes that are pointed out in another field. The patients were divided into two groups according to the presence or absence of CVD (CVD and non-CVD groups). Among the 1,876,953 reported cases, 3,562 confirmed cases of pregnant and postpartum women were included, of which 602 had CVD. Patients with CVD had an older age (p<0,001), a higher incidence of diabetes (p<0,001) and obesity (p<0,001), a higher frequency of systemic (p<0,001) and respiratory symptoms (p<0,001). CVD was a risk factor for ICU admission (p<0,001), ventilatory support (p = 0.004) and orotracheal intubation in the third trimester (OR 1.30 CI95%1.04–1.62). The group CVD had a higher mortality (18.9% vs. 13.5%, p<0,001), with a 32% higher risk of death (OR 1.32 CI95%1.16–1.50). Moreover, the risk was increased in the second (OR 1.94 CI95%1.43–2.63) and third (OR 1.29 CI95%1.04–1.60) trimesters, as well as puerperium (OR 1.27 CI95%1.03–1.56). Hospitalized obstetric patients with CVD and COVID-19 are more symptomatic. Their management demand more ICU admission and ventilatory support and the mortality is higher. (Author)

Full URL: https://doi.org/10.1371/journal.pone.0266792

2024-12966

Impact of COVID-19 pandemic on utilization of essential maternal healthcare services in Ethiopia: A systematic review and meta-analysis. Mekonnen BD, Yirdaw BW (2023), PLoS ONE vol 18, no 2, February 2023, e0281260

Background

The COVID-19 pandemic has a significant challenge for countries to maintain the provision of essential maternity services. Many women could experience difficulties in accessing maternal healthcare due to transport problems, anxiety, and fear of infection. A reduction in the utilization of maternity services has been suggested as a possible cause of worsened maternal health outcomes. Thus, this study aimed to determine the impact of the COVID-19

pandemic on the utilization of maternal healthcare services in Ethiopia.

Methods

Searching of articles was conducted from PubMed, Science Direct, Cochrane Library, Web of Science, Scopus, and Google scholar. The quality of studies was evaluated using the Newcastle-Ottawa scale. Inspection of the Funnel plot and Egger's test were used to evaluate the evidence of publication bias. Heterogeneity was evaluated using Cochran's Q statistic and quantified by I2. A random-effects model was used to determine pooled estimates using STATA 14.

Results

After reviewing 41,188 articles, 21 studies were included in this systematic review and meta-analysis. The pooled reduction was 26.62% (95% CI: 13.86, 39.37) for family planning, 19.30% (95% CI: 15.85, 22.76) for antenatal care, 12.82% (95% CI: 7.29, 18.34) for institutional delivery, 17.82% (95% CI: 8.32, 27.32) for postnatal care, and 19.39% (95% CI: 11.29, 27.49) for abortion care. This study also demonstrated that maternal perception of poor quality of care and fear of infection, lack of transport, cultural events, diversion of resources, lack of essential drugs, and lack of personal protective equipment and sanitizer were identified as the main challenges faced during the pandemic.

Conclusion

This study revealed that the utilization of maternal healthcare services in Ethiopia significantly decreased during the COVID-19 pandemic. Government measures, health facility-related barriers, and maternal-related factors were identified as challenges faced during the pandemic. Thus, service providers, policy-makers, and other relevant stakeholders should prioritize maternity care as an essential core healthcare service. Besides, increasing awareness of women through mass media, and making maternity services more accessible and equitable would likely increase the utilization of maternal healthcare services. (Author)

Full URL: https://doi.org/10.1371/journal.pone.0281260

2024-12745

Qualitative evaluation of rapid implementation of remote blood pressure self-monitoring in pregnancy during Covid-19. Paterson C, Jack E, McKinstry B, et al (2023), PLoS ONE vol 18, no 3, March 2023, e0278156

In March 2020, the World Health Organisation named the severe acute respiratory syndrome coronavirus 2 (Sars-CoV-2), which causes corona virus disease 2019 (COVID –19), as a pandemic. Pregnant women were considered at increased risk of developing severe COVID-19 after viral infection. In response maternity services reduced face-to-face consultations with high-risk pregnant women by supplying blood pressure monitors for supported self-monitoring. This paper explores the experiences of patients and clinicians of the rapid roll-out of supported self-monitoring programme in Scotland during the first and second wave of the COVID-19 pandemic. We conducted semi-structured telephone interviews with high-risk women and healthcare professionals who were using supported self-monitoring of blood pressure (BP) In four case studies during the COVID-19 pandemic. 20 women, 15 midwives and 4 obstetricians took part in the interviews. Interviews with healthcare professionals showed that while implementation occurred at pace and at scale across the National Health Service (NHS) in Scotland, implementation differed locally, resulting in mixed experiences. Study Participants observed several barriers and facilitators to implementation. Women value the simplicity of use and convenience of the digital communications platforms while health professionals were more interested in their impact on reducing workload for both women and health professionals largely found self-monitoring acceptable, with only a few exceptions. These results show that rapid change can occur in the NHS at a national level when there is a shared motivation. While self-monitoring is acceptable to most women, decisions regarding self-monitoring should be made jointly and on an individual basis. (Author)

Full URL: https://doi.org/10.1371/journal.pone.0278156

2024-12737

SCOPE: Surveillance of COVID-19 in pregnancy- results of a multicentric ambispective case-control study on clinical presentation and maternal outcomes in India between April to November 2020. Kumar S, Bhatla N, Sharma KA, et al

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(2023), PLoS ONE vol 18, no 3, March 2023, e0272381

Objective

To determine the clinical manifestations, risk factors, treatment modalities and maternal outcomes in pregnant women with lab-confirmed COVID-19 and compare it with COVID-19 negative pregnant women in same age group.

Design

Multicentric case-control study.

Data sources

Ambispective primary data collection through paper-based forms from 20 tertiary care centres across India between April and November 2020.

Study population

All pregnant women reporting to the centres with a lab-confirmed COVID-19 positive result matched with controls.

Data quality

Dedicated research officers extracted hospital records, using modified WHO Case Record Forms (CRF) and verified for completeness and accuracy.

Statistical analysis

Data converted to excel files and statistical analyses done using STATA 16 (StataCorp, TX, USA). Odds ratios (ORs) with 95% confidence intervals (CI) estimated using unconditional logistic regression.

Results

A total of 76,264 women delivered across 20 centres during the study period. Data of 3723 COVID positive pregnant women and 3744 age-matched controls was analyzed. Of the positive cases 56·9% were asymptomatic. Antenatal complications like preeclampsia and abruptio placentae were seen more among the cases. Induction and caesarean delivery rates were also higher among Covid positive women. Pre-existing maternal co-morbidities increased need for supportive care. There were 34 maternal deaths out of the 3723(0.9%) positive mothers, while covid negative deaths reported from all the centres were 449 of 72,541 (0·6%).

Conclusion

Covid-19 infection predisposed to adverse maternal outcomes in a large cohort of Covid positive pregnant women as compared to the negative controls. (Author)

Full URL: https://doi.org/10.1371/journal.pone.0272381

2024-12711

Maternal COVID-19 infection and associated factors: A cross-sectional study. Lubeya MK, Kabwe JC, Mukosha M, et al (2023), PLoS ONE vol 18, no 3, March 2023, e0281435

Background

Since the declaration of COVID-19 as a global pandemic, several studies have been conducted to examine associated factors. However, few studies have focused on pregnant women infected with COVID-19 in sub-Saharan Africa. Therefore, this study investigated the prevalence and factors associated with COVID-19 infection among pregnant women at the Levy Mwanawasa University Teaching Hospital and Women and Newborn Hospital of the University Teaching Hospitals in Lusaka, Zambia.

Methods

A cross-sectional study was conducted between March and July 2021. Women were recruited as they presented for antenatal care. Data was collected using a structured questionnaire to capture variables of interest (socio-demographic, clinical and obstetric). COVID-19 diagnosis was made using a nasopharyngeal swab by PCR test.

Multivariable logistic regression was used to control for confounding and calculate the odds ratios for each explanatory variable and respective 95% confidence intervals.

Results

The study enrolled 352 participants with a mean (standard deviation [SD]) age of 30.1 years (5.6). One hundred thirty of 352 (36.9%; 95% CI: 31.9 to 42.2) participants had a confirmed positive SARS-CoV-2 test result. At univariable analysis, factors associated with COVID-19 were increased gestational age, education status and maternal HIV serostatus. Women with a secondary level of education were less likely to have COVID-19 infection than those with a primary level of education (AOR = 0.23, 95% CI: 0.09–0.63). On the other hand, a one-week increase in gestational age was associated with higher odds of COVID-19 infection (AOR = 1.03, 95% CI: 1.01–1.06).

Conclusion

The results showed that the prevalence of COVID-19 infection among pregnant women was 36.9% and was associated with increased gestational age and a lower level of education. To mitigate adverse maternal outcomes, there is a need to screen for COVID-19 strictly and broadly monitor prenatal women presenting for healthcare. (Author)

Full URL: https://doi.org/10.1371/journal.pone.0281435

2024-12692

Potential molecular and cellular mechanisms for adverse placental outcomes in pregnancies complicated by SARS-CoV-2 infection—A scoping review. Wai JY, Wood EM, Hornaday KK, et al (2023), PLoS ONE vol 18, no 3, March 2023, e0283453

Background

Emerging evidence suggests that SARS-CoV-2 infection during pregnancy can result in placental damage and poor placental outcomes. However, the mechanisms by which SARS-CoV-2 infection leads to placental damage are not well understood. With a rapid expansion of literature on this topic, it is critical to assess the quality and synthesize the current state of literature. The objective of this scoping review is to highlight underlying mechanisms of SARS-CoV-2 mediated placental pathology in pregnant individuals and identify literature gaps regarding molecular and cellular mechanisms of poor placental outcomes.

Methods

The review was conducted and reported following the recommendations of the PRISMA extension for Scoping Reviews. The study protocol was registered with Open Science Framework (https://osf.io/p563s/). Five databases (MEDLINE, EMBASE, Scopus, CINAHL, PubMed) were searched for studies published between September 2019 until April 2022. Studies assessing placental outcomes with respect to SARS-CoV-2 infection in pregnancy were eligible for inclusion. Outcomes of interest included histopathology, and molecular or cellular analysis. All records were uploaded into Covidence and extracted using the Joanna Briggs Institute method. Studies were assessed for risk of bias using the Newcastle Ottawa scale and a narrative synthesis of results was generated.

Results

Twenty-seven studies reporting on molecular and/or cellular mechanisms of SARS-CoV-2 mediated placental outcomes were included in this review. SARS-CoV-2 infection was associated with perturbations in the ACE2 pathway, inflammatory mediators and immune cell populations and mitochondrial function in placentas.

Conclusions

Our findings suggest that changes in the ACE2 pathway, mitochondrial dysfunction, and/or inflammatory processes may lead to placental damage observed in SARS-CoV-2 infection during pregnancy. More research is needed to understand the role of these pathways further, in addition to data collection related to trimester, severity, and strain. (Author)

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2024-12636

SARS-CoV-2 seroprevalence in pregnant women in Kilifi, Kenya from March 2020 to March 2022. Koech A, Omuse G, Mugo AG, et al (2023), Frontiers in Public Health 19 December 2023, online

Background: Seroprevalence studies are an alternative approach to estimating the extent of transmission of SARS-CoV-2 and the evolution of the pandemic in different geographical settings. We aimed to determine the SARS-CoV-2 seroprevalence from March 2020 to March 2022 in a rural and urban setting in Kilifi County, Kenya.

Methods: We obtained representative random samples of stored serum from a pregnancy cohort study for the period March 2020 to March 2022 and tested for antibodies against the spike protein using a qualitative SARS-CoV-2 ELISA kit (Wantai, total antibodies). All positive samples were retested for anti-SARS-CoV-2 anti-nucleocapsid antibodies (Euroimmun, ELISA kits, NCP, qualitative, IgG) and anti-spike protein antibodies (Euroimmun, ELISA kits, QuantiVac; quantitative, IgG).

Results: A total of 2,495 (of 4,703 available) samples were tested. There was an overall trend of increasing seropositivity from a low of 0% [95% CI 0–0.06] in March 2020 to a high of 89.4% [95% CI 83.36–93.82] in Feb 2022. Of the Wantai test-positive samples, 59.7% (95% CI 57.06–62.34) tested positive by the Euroimmun anti-SARS-CoV-2 NCP test and 75.9% (95% CI 73.55–78.17) tested positive by the Euroimmun anti-SARS-CoV-2 QuantiVac test. No differences were observed between the urban and rural hospital but villages adjacent to the major highway traversing the study area had a higher seroprevalence.

Conclusion: Anti-SARS-CoV-2 seroprevalence rose rapidly, with most of the population exposed to SARS-CoV-2 within 23 months of the first cases. The high cumulative seroprevalence suggests greater population exposure to SARS-CoV-2 than that reported from surveillance data. (Author) [Erratum: Frontiers in Public Health, 14 October 2024, online. https://doi.org/10.3389/fpubh.2024.1500467]

Full URL: https://doi.org/10.3389/fpubh.2023.1292932

2024-12523

Clinical characteristics, outcomes and persistent symptoms of pregnant women with COVID-19: A retrospective cohort study. Ghizzoni APO, Santos AK, de Braga RSL, et al (2025), International Journal of Gynecology & Obstetrics vol 168, no 2, February 2025, pp 709-715

Objective

The aim of this study was to evaluate the clinical characteristics and outcomes of pregnant women with COVID-19 and to compare with pregnant women without COVID-19. In addition, in the subgroup of patients who were symptomatic at the time of diagnosis, the persistence of symptoms was assessed.

Methods

This was a retrospective cohort study. All pregnant women aged ≥18 years, admitted to the maternity ward from March 2020 to September 2023 were included in the study. All patients admitted were routinely screened for SARS-CoV-2. Clinical characteristics and outcomes were registered.

Results

During the study period, 880 patients met the inclusion and were included in the analysis: 385 were COVID-19 positive and 495 were COVID-19 negative. In a multivariate analysis of the outcomes associated with COVID-19 among pregnant women, hospitalization and the Apgar score at 5 min were independently associated with COVID-19. Cesarean delivery, preterm birth, Apgar scores at 1 and 5 min <7, and maternal death were more frequent in pregnant women with COVID-19 admitted to ICU than in those not admitted to ICU. Approximately 30% of patients had persistence of symptoms, for at least 6 months in almost 60%.

Conclusion

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The findings of the present study suggest that COVID-19 was associated with increased morbidity and mortality among pregnant women. In addition, pregnant women with SARS-CoV-2 infection were at significantly higher risk of adverse perinatal outcomes, especially preterm birth. (Author)

2024-12448

COVID-19 pandemic, pregnancy care, perinatal outcomes in Eastern Myanmar and North-Western Thailand: a retrospective marginalised population cohort. Prins TJ, Watthanaworawit W, Gilder ME, et al (2024), BMC Pregnancy and Childbirth vol 24, no 637, October 2024

Background

The COVID-19 pandemic disrupted routine health care and antenatal and birth services globally. The Shoklo Malaria Research Unit (SMRU) based at the Thailand-Myanmar border provides cross border antenatal care (ANC) and birth services to marginalised pregnant women. The border between the countries entered lockdown in March 2020 preventing cross-border access for women from Myanmar to Thailand. SMRU adapted by opening a new clinic during the COVID-19 pandemic in Myanmar. This study explored the impact of the COVID-19 pandemic and response on access to ANC and pregnancy outcomes for marginalised pregnant women in the border regions between Thailand and Myanmar.

Methods

A retrospective review of medical records of all pregnancies delivered or followed at antenatal clinics of the SMRU from 2017 to the end of 2022. Logistic regression was done to compare the odds of maternal and neonatal outcomes between women who delivered pre-COVID (2017–2019) and women who delivered in the COVID-19 pandemic (2020–2022), grouped by reported country of residence: Thailand or Myanmar.

Results

Between 2017 and the end of 2022, there were 13,865 (5,576 resident in Thailand and 8,276 in Myanmar) marginalised pregnant women who followed ANC or gave birth at SMRU clinics. Outcomes of pregnancy were known for 9,748 women with an EGA ≥ 28 weeks. Unknown outcome of pregnancy among women living in Thailand did not increase during the pandemic. However, there was a high (60%) but transient increase in unknown outcome of pregnancy for women with Myanmar residence in March 2020 following border closure and decreasing back to the baseline of 20–30% after establishment of a new clinic. Non-literate women were more likely to have an unknown outcome during the pandemic. There was no statistically significant increase in known stillbirths or maternal deaths during the COVID pandemic in this population but homebirth was over represented in maternal and perinatal mortality.

Conclusion

Decreasing barriers to healthcare for marginalised pregnant women on the Thailand-Myanmar border by establishment of a new clinic was possible in response to sudden border closure during the COVID-19 pandemic and most likely preventing an increase in maternal and perinatal mortality. (Author)

Full URL: https://doi.org/10.1186/s12884-024-06841-0

2024-12440

Association of SARS-CoV-2 infection during late pregnancy with maternal and neonatal outcomes. Du T, Zhang Y, Zha X, et al (2024), BMC Pregnancy and Childbirth vol 24, no 632, October 2024

Background

Limited data on the impact of the coronavirus disease 2019 (COVID-19) during pregnancy on newborn outcomes are available. This study aimed to characterize and compare the clinical outcomes of newborns from women with and without the severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) infection during late pregnancy.

Method

This was a retrospective cohort study of women who were either infected or not infected with the SARS-CoV-2 virus

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during late pregnancy. The neonatal complications associated with COVID-19-positive pregnant women were investigated and analyzed.

Results

Among 2063 pregnant women over 28 weeks of gestation, 1.2%, 3.3%, and 18.7% of patients with multiple pregnancies, abnormal fetal positions, and lack of maternal or neonatal follow-up data, respectively, were excluded. Patients who were COVID-19-negative (60.6%) and -positive (16.2%) remained for further analysis. SARS-CoV-2 infection was significantly associated with higher SARS-CoV-2 infection rates in newborns (0% vs. 1.49%, $P < 0.01$) and longer duration of hospital stay (6.39 ± 2.2 vs. 4.92 ± 1.6, $P < 0.01$). However, comparing neonatal complications, including Apgar score, preterm birth, low birth weight, cesarean section rate, newborn hearing, neonatal congenital heart defects, and height and weight compliance rate of 6-month-old children, between non-infected and infected participants did not reach statistical significance.

Conclusion

SARS-CoV-2 infection in late pregnancy has no significant impact on neonatal outcomes. After six months of follow-up of the neonates, we observed that SARS-CoV-2 infection in the third trimester of pregnancy did not affect their growth and development. Hopefully, these findings will guide management strategies and clinical practice. (Author)

Full URL: https://doi.org/10.1186/s12884-024-06816-1

2024-12374

Socioeconomic status as a risk factor for SARS-CoV-2 infection in pregnant women. Lastinger J, Gerich J, Beham-Rabanser M, et al (2024), Journal of Perinatal Medicine vol 52, no 8, August 2024, pp 817-823

Objectives: Due to the association between COVID-19 and adverse pregnancy outcomes, pregnant women are considered to be a vulnerable patient group. Studies have shown that low socioeconomic status (SES) is a risk factor for SARS-CoV-2 infection. COVID-19 and low SES are likely to have a synergistic adverse effect. This study aimed to evaluate the socioeconomic background, indicated by self-reported SES, educational level, and financial situation, in pregnant women who were positive for SARS-CoV-2.

Methods: A case-control study was conducted, including all pregnant women with positive SARS-CoV-2 PCR tests at Kepler University Hospital Linz between May 2020 and August 2021 (n=150) and a control group matched 1:1 relative to gestational age at birth (n=150). Data were collected using written questionnaires and medical records from the hospital information system.

Results: Lower self-reported socioeconomic status (p=0.029) and lower education level (p=0.003) were detected in the COVID group. Mothers in the COVID group were significantly younger (p=0.024). However, after adjustment for educational attainment, younger age was not confirmed as a risk factor for SARS-CoV-2 infection during pregnancy (p=0.326). The social gradient was not explained by the assumed mediators and confounders.

Conclusions: These findings confirm an association between lower socioeconomic status and the risk of SARS-CoV-2 infection during pregnancy. Since both socioeconomic factors and COVID-19 impose negative effects on pregnancy outcomes, health inequalities should be taken into consideration when implementing SARS-CoV-2 prevention measures and when providing health care for pregnant women from disadvantaged communities.

Keywords: COVID-19; SARS-CoV-2; health inequalities; pregnancy; socioeconomic status.

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2024-12371

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KANET evaluation in patients with SARS-CoV-2. Fasoulakis Z, Kurjak A, Sapantzoglou I, et al (2024), Journal of Perinatal Medicine vol 52, no 8, August 2024, pp 811-816

Objectives: To determine a possible correlation between SARS-CoV-2 infection during pregnancy and altered fetal behavior.

Methods: Kurjak's antenatal neurodevelopmental test (KANET) was applied from 28 to 40 weeks in 38 gestations (group A) diagnosed with COVID-19 infection during the first week and 43 non-COVID pregnant women (group B).

Results: No statistically significant differences considering maternal age (33±3.9 years for group A vs. 31±4.1 years for group B) and gestational age (33±1.6 weeks for group A compared to 33±2.1 weeks for group B) were observed. KANET scores were not different between the two groups.

Conclusions: Fetal behavior differences are not altered in women diagnosed with SARS-CoV-2 infection during the third trimester of pregnancy.

Keywords: KANET; SARS-CoV-2; fetal neurobehavior.

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Full URL: https://doi.org/10.1515/jpm-2024-0258

2024-12321

Delivery Hospitalization Cardiac and Respiratory Complications during SARS-CoV-2 Delta Variant Dominance. Wang RM, Friedman A, Booker WA, et al (2024), American Journal of Perinatology 30 September 2024, online

In 2021, the severe acute respiratory syndrome coronavirus 2 Delta variant rapidly proliferated and became dominant. Some but not all research evidence supports that Delta was associated with increased maternal risk. The purpose of this study was to determine whether Delta was associated with risk for cardiac and respiratory complications in a national sample. Of an estimated 3,495,188 delivery hospitalizations in 2021, 1.8% of pre-Delta deliveries (n = 29,580; January–June) and 2.1% of Delta-period deliveries (n = 37,545; July–December) had a coronavirus disease 2019 (COVID-19) diagnosis. The Delta period was associated with increased adjusted odds of respiratory complications (adjusted odds ratio [aOR] = 1.54, 95% CI: 1.41, 1.69) and cardiac severe maternal morbidity (SMM; aOR = 1.54, 95% CI: 1.40, 1.69). Among deliveries with a COVID-19 diagnosis, the Delta period was associated with a higher incidence of respiratory complications (8.4 vs. 3.7%) and cardiac SMM (8.4 vs. 3.5%; $p < 0.01$ for both). These findings corroborate prior clinical studies suggesting that the Delta strain was associated with an increased maternal population-level clinical burden.

Key Points

The Delta strain was associated with an increased maternal population-level clinical burden.

The Delta period was associated with an increased risk for cardiac and respiratory complications.

Among deliveries with a COVID-19 diagnosis, the Delta period was associated with increased risk. (Author)

2024-11981

SARS-CoV-2 replicates in the placenta after maternal infection during pregnancy. Radan AP, Renz P, Raio L, et al (2024), Frontiers in Medicine 4 September 2024, online

Objectives: Pregnant women are at increased risk for severe SARS-CoV-2 infection and adverse neonatal outcome, primarily preterm birth and stillbirth. Our study aimed to investigate to which extent SARS-CoV-2 affects placental tissue and if viral replication within the placenta is evident, thus if there is a correlation between placental damage

and adverse pregnancy outcome such as stillbirth.

Methods: We prospectively collected placentas from 61 SARS-CoV-2 infected pregnant women and 10 controls. Histopathological, immunohistochemical, and in situ hybridization studies were performed on all placentas with antibodies for SARS-CoV-2 proteins, ACE2, various immune cells, and inflammatory markers or probes for SARS-CoV-2 genes and an antisense strand.

Results: The measured scores of SARS-CoV-2 glycoprotein, nucleocapsid, and antisense strand indicating replication correlated with both the severity of maternal symptoms and presence of stillbirth. Specifically, 15/61 placentas exhibited replication, while the three cases with stillbirth had high or maximal replication scores. ACE2-H-score was significantly higher in COVID-19 patients, while the expression of various immune cells did not differ statistically. In multivariate analysis, presence of maternal comorbidities correlated with presence of severe COVID-19 infection.

Conclusion: We report evidence of active in vivo SARS-CoV-2 replication in the placenta after maternal infection in pregnancy in a case–control setting in a large population. Intensity of placental viral replication as well as viral levels were higher in women with severe or critical COVID-19 disease, supporting the rationale that severity of maternal SARS-CoV-2 infection could correlate with the severity of placentitis. Replication was maximal in cases of stillbirth, which suggests direct placental involvement in the pathophysiology of this dramatic outcome. Continuing to advocate for preventive measures against COVID-19 during pregnancy, including (re)vaccination, as well as appropriately counseling women with diagnosed infection, are of utter importance. (Author)

Full URL: https://doi.org/10.3389/fmed.2024.1439181

2024-11787

Population-level changes in perinatal death for pregnancies prior to and during the COVID-19 pandemic: A pregnancy cohort analysis. Funk A, Stephenson N, McNeil DA, et al (2024), Paediatric and Perinatal Epidemiology vol 38, no 7, September 2024, pp 583-593

Background

Results of population-level studies examining the effect of the COVID-19 pandemic on the risks of perinatal death have varied considerably.

Objectives

To explore trends in the risk of perinatal death among pregnancies beginning prior to and during the pandemic using a pregnancy cohort approach.

Methods

This secondary analysis included data from singleton pregnancies ≥20 weeks' gestation in Alberta, Canada, beginning between 5 March 2017 and 4 March 2021. Perinatal death (i.e. stillbirth or neonatal death) was the primary outcome considered. The risk of this outcome was calculated for pregnancies with varying gestational overlap with the pandemic (i.e. none, 0–20 weeks, entire pregnancy). Interrupted time series analysis was used to further determine temporal trends in the outcome by time period of interest.

Results

There were 190,853 pregnancies during the analysis period. Overall, the risk of perinatal death decreased with increasing levels of pandemic exposure; this outcome was experienced in 1.0% (95% confidence interval [CI] 0.9, 1.0), 0.9% (95% CI 0.8, 1.1) and 0.8% (95% CI 0.7, 0.9) of pregnancies with no overlap, partial overlap and complete pandemic overlap respectively. Pregnancies beginning during the pandemic that had high antepartum risk scores less frequently led to perinatal death compared to those beginning prior; 3.3% (95% CI 2.7, 3.9) versus 5.7% (95% CI 5.0, 6.5) respectively. Interrupted time-series analysis revealed a decreasing temporal trend in perinatal death for pregnancies beginning ≤40 weeks prior to the start of the COVID-19 pandemic (i.e. with pandemic exposure), with no trend for pregnancies beginning >40 weeks pre-pandemic (i.e. no pandemic exposure).

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Conclusion

We observed a decrease in perinatal death for pregnancies overlapping with the COVID-19 pandemic in Alberta, particularly among those at high risk of these outcomes. Specific pandemic control measures and government response programmes in our setting may have contributed to this finding. (Author)

Full URL: https://doi.org/10.1111/ppe.13105

2024-11764

Did we observe changes in obstetric interventions in SARS-CoV-2 infected pregnant women at the beginning of COVID-pandemic in Belgium? Results of a nationwide population-based study.. Vercoutere A, Racapé J, Zina MJ, et al (2024), European Journal of Obstetrics & Gynecology and Reproductive Biology: X vol 23, September 2024, 100328

Background

Pregnant women are more vulnerable to the severe effects of COVID-19 compared to their non-pregnant peers. Early in the pandemic, there was a rise in cesarean deliveries and preterm births among infected pregnant women. This study aims to evaluate whether there were any changes in obstetric interventions during the first two waves of the pandemic in Belgium.

Methods

Between March 2020 and February 2021, the Belgian Obstetric Surveillance System (B.OSS) conducted an extensive, nationwide population-based registry study, that included nearly all births to women with a confirmed SARS-CoV-2 infection within six weeks before hospitalization in Belgium. The perinatal outcomes of these women were analyzed and compared with pre-pandemic regional perinatal data.

Results

A total of 923 SARS-CoV-2 infected pregnant women were admitted to the hospital; 9.3 % were hospitalized for severe COVID-19, while the remaining were hospitalized for obstetric reasons. Infected women had a higher median BMI, a higher incidence of diabetes, and a greater proportion were overweight or obese compared to the reference group ($p < 0.001$). While the majority of women gave birth vaginally, symptomatic women and those with a severe infection had slightly higher rates of cesarean delivery, though not statistically significant after adjusting for confounders. Only severely ill women had an increased risk of preterm delivery (aOR 2.3; 95 %CI [1.2–2.5]; $p = 0.02$) and of induced labor (OR 1.8; 95 %CI [1.1–2.8]; $p = 0.01$). The use of general anesthesia for cesarean delivery was more common in the infected group (OR 2.6; 95 %CI [1.6–4.1]; $p < 0.001$).

Conclusions

Obstetric interventions, such as cesarean delivery and induction, remained at pre-pandemic levels. However, a SARS-CoV-2 infection appears to have increased medically induced preterm delivery and the use of general anesthesia for cesarean delivery. (Author)

Full URL: https://doi.org/10.1016/j.eurox.2024.100328

2024-11709

Increasing Prevalence of Diagnosed Gestational Diabetes in South Carolina: 2015–2021. Hunt KJ, Wen CC, Neelon B, et al (2024), Journal of Women's Health vol 33, no 11, November 2024, pp 1518–1527

Objective: To examine trends with a focus on racial and ethnic disparities in reported gestational diabetes mellitus (GDM) and related outcomes (macrosomia, large for gestational age infants) before and during the COVID-19 pandemic in South Carolina (SC).

Methods: A retrospective cohort study of pregnancies resulting in livebirths from 2015 through 2021 was conducted in SC. Statewide maternal hospital and emergency department discharge codes were linked to birth certificate data. GDM was defined by ICD-9-CM (i.e., 648.01–648.02, 648.81–648.82) or ICD-10-CM codes (i.e., O24.4, O24.1, O24.9), or indication of GDM on the birth certificate without evidence of diabetes outside pregnancy (ICD-9-CM: 250.xx; ICD-10-CM: E10, E11, O24.0, O24.1, O24.3).

Results: Our study included 194,777 non-Hispanic White (White), 108,165 non-Hispanic Black (Black), 25,556 Hispanic, and 16,344 other race–ethnic group pregnancies. The relative risk for GDM associated with a 1-year increase was 1.01

(95% confidence interval [CI]: 1.01–1.02) before the pandemic and 1.12 (1.09–1.14) during the pandemic. While there were race–ethnic differences in the prevalence of GDM, increasing trends were similar across all race–ethnic groups before and during the pandemic. From quarter 1, 2020, to quarter 4, 2021, the prevalence of reported GDM increased from 8.92% to 10.85% in White, from 8.04% to 9.78% in Black, from 11.2% to 13.65% in Hispanic, and from 13.3% to 16.16% in other race–ethnic women.
Conclusion: An increasing prevalence of diagnosed GDM was reported during the COVID-19 pandemic. Future studies are needed to understand the mechanisms underlying increasing trends, to develop interventions, and to determine whether the increasing trend continues in subsequent years. (Author)

2024-11550

Clinical characteristics of pregnant and nonpregnant women hospitalized with suspected or confirmed COVID-19.
World Health Organization (2024), World Health Organization 3 September 2024

This report describes and evaluates the clinical characteristics (demographic features, clinical features, underlying conditions, medications, therapeutic interventions, supportive care, laboratory markers, COVID-19 vaccination status and clinical outcomes) of currently and recently pregnant women with pregnancy and/or delivery outcomes and nonpregnant women of reproductive age who were hospitalized for clinically suspected or confirmed COVID-19.
The specific objectives of this analyses were to:
1. Describe the clinical characteristics among currently pregnant or recently pregnant women (defined as the end of pregnancy within 21 days of admission) hospitalized with COVID-19.
2. Explore the association between clinical characteristics and pregnancy, maternal and neonatal outcomes among the subset of currently pregnant women with reported pregnancy/delivery outcomes.
3. Describe and explore the maternal and neonatal outcomes for the subgroup of pregnant women who gave birth during the hospitalization.
4. Describe the clinical characteristics of nonpregnant women 15–49 years of age hospitalized with COVID-19 and assess whether pregnant women hospitalized with COVID-19 were at increased risk of presenting with severe/critical illness at admission and were at increased risk of in-hospital death compared with nonpregnant women.
5. Assess the risk in pregnant women of presenting with severe/critical illness and of in□hospital death based on COVID-19 variant types.
The report will be presented in this order:
• Global clinical data findings from the core CRF focusing on the subgroup of pregnant women who were admitted to the hospital.
• Pregnancy module data (currently pregnant and recently pregnant women) including the pregnancy/delivery outcomes.
• Selected analyses using the Global Clinical Platform data on severity and mortality among pregnant versus nonpregnant women (Author)
Full URL: https://www.who.int/publications/i/item/9789240097476

2024-11492

SARS-CoV-2 genome detection and viral viability in breast milk samples of unvaccinated postpartum women. de Moraes Nobrega G, Granja F, Pietro L, et al (2025), International Journal of Gynecology & Obstetrics vol 168, no 1, January 2025, pp 387-390

This assessment of SARS-CoV-2 in breast milk is reassuring for the maintenance of breastfeeding even in cases of infected pregnant women unvaccinated for COVID-19. (Author)

2024-11443

SARS-CoV-2 seroprevalence and preeclampsia markers in Mozambican pregnant women with perinatal loss. Chileshe M, Nhampossa T, Carrilho C, et al (2024), BMC Pregnancy and Childbirth vol 24, no 609, September 2024

Background

SARS-CoV-2 infection during pregnancy is known to be associated with poor pregnancy outcomes, including

pre-eclampsia (PE), prematurity, perinatal and maternal mortality. Data on the burden of SARS-CoV-2 infection among pregnant women and their offspring in Sub-Saharan Africa is limited. We aimed to estimate SARS-CoV-2 seroprevalence and determine PE biomarkers in Mozambican pregnant women with perinatal loss.

Methods

A cross-sectional study was conducted among women who had a fetal or an early neonatal death at the Maputo Central Hospital (MCH), Mozambique. Anti-SARS-CoV-2 IgG/IgM were determined in maternal and umbilical cord blood and PE biomarkers (sFlt-1 and PIGF) in maternal blood. SARS-CoV-2 RT-PCR was performed in placenta and fetal lung biopsies from participants found to be SARS-CoV-2 seropositive.

Results

A total of 100 COVID-19 unvaccinated women were included in the study from March 2021 to April 2022. Total SARS-CoV-2 antibodies were detected in 68 [68%; 95CI (58 – 76)] maternal and 55 [55%; 95CI (54 – 74)] cord blood samples. SARS-CoV-2 IgM was detected in 18 cord blood samples and a positive placental RT-PCR in three of these participants. The proportion of women with moderate to high sFlt-1/PIGF ratio was higher in SARS-CoV-2 seropositive women than in those seronegative (71.2% vs 28.8%, p = 0.339), although the difference was not statistically significant.

Conclusions

SARS-CoV-2 seroprevalence among Mozambican women with perinatal loss was high during the second pandemic year, and there was evidence of vertical transmission in stillbirths. Findings also suggest that maternal SARS-CoV-2 infection may increase the risk of developing PE. (Author)

Full URL: https://doi.org/10.1186/s12884-024-06800-9

2024-11438

Determining the predictors of preventive behaviors adopted by pregnant women against COVID-19 based on the Health Belief Model constructs: a cross sectional study. Bayrami R, Masudi S, Didarloo A, et al (2024), BMC Women's Health vol 24, no 528, September 2024

Background

Pregnant women face great challenges during the coronavirus disease 2019(COVID-19) pandemic. The purpose of this study was to explain the main dimensions of adoption of self-care behaviors against COVID-19 based on the health belief model(HBM) in pregnant women.

Methods

This cross-sectional and analytical study was conducted in Iran, at the end of the third wave of the COVID-19 pandemic, between January and April 2021. Two hundred and thirty pregnant women who referred to Urmia health centers were selected using multi-stage random sampling. The data were collected using an online questionnaire including items that measured the participants' demographic characteristics, the knowledge questionnaire, the HBM items, and questions assessing the adoption of self-care behaviors against COVID-19. The data were analyzed using SPSS software version 20. Descriptive statistics, bivariate Pearson's correlation test, and multiple linear regression were used to analyze the data.

Results

The results of this study showed that the rate of self-care behaviors against COVID-19 in the pregnant women participating in the present study was not very favorable. It was also shown that among the constructs of the HBM, knowledge, self-efficacy, and perceived barriers were the most important predictors of adopting self-care behaviors with a variance of 24% change among the pregnant women.

Conclusion

Knowledge, self-efficacy, and perceived barriers were found in this study as the strongest predictors of self-care behaviors among pregnant women. Thus, it is suggested to implement interventions commensurate with the results

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of this study. (Author)
Full URL: https://doi.org/10.1186/s12905-024-03305-7

2024-11291

COVID testing hesitancy among pregnant patients: lessons learned from the COVID-19 pandemic about the unique needs and challenges of medically complex populations. Farrell RM, Dahler C, Pope R, et al (2024), BMC Pregnancy and Childbirth vol 24, no 593, September 2024

Background
Pregnant patients were a significant population to consider during the pandemic, given the impact of SARS-CoV-2 infection on obstetric outcomes. While COVID testing was a central pillar of infection control, it became apparent that a subset of the population declined to test. At the same time, data emerged about pregnant persons also declining testing. Yet, it was unknown why pregnant patients declined tests and if those reasons were similar or different from those of the general population. We conducted this study to explore pregnant patients' attitudes, access, and utilization of COVID-19 testing to support healthcare for infection prevention management for this unique and medically complex population.

Methods
We conducted a qualitative study of patients who were currently or recently pregnant during the early stages of the pandemic and received outpatient prenatal care at one of the participating study sites. An interview guide was used to conduct in-depth telephone interviews. Coding was performed using NVivo, and analysis was conducted using Grounded Theory.

Results
The average age of the participants (N = 37) was 32 (SD 4.21) years. Most were < 35 years of age (57%) and self-described as White (68%). Qualitative analysis identified themes related to barriers to COVID-19 testing access and use during pregnancy, including concerns about test accuracy, exposure to COVID-19 in testing facilities, isolation and separation during labor and delivery, and diminished healthcare quality and patient experience.

Conclusions
The implementation of widespread and universal COVID testing policies did not address the unique needs and challenges of pregnant patients as a medically complex population. It is important to understand the reasons and implications for pregnant patients who declined COVID testing during the current pandemic to inform strategies to prevent infection spread in future public health emergencies. (Author)
Full URL: https://doi.org/10.1186/s12884-024-06739-x

2024-11273

Risk perception increase due to COVID-19 impacted antenatal care utilization among women in an indigenous community. Gómez-Chávez P, Soriano-Avelar VM, Aguilar-Rodríguez A, et al (2024), BMC Pregnancy and Childbirth vol 24, no 578, September 2024

Background
Risk perception varies greatly among individuals, affecting their behavior and decision-making in risky situations. The COVID-19 pandemic affected worldwide, but the role of risk perception related to COVID-19 in ethnic minorities in Mexico is unclear. This study quantifies the impact of COVID-related risk perception (susceptibility and severity) and perceived fear on the utilization of antenatal care services among indigenous women in San Cristobal de las Casas, Chiapas, Mexico.

Methods
We conducted a retrospective crossover study between June and December 2021, interviewing 98 women from San Cristóbal de las Casas, Chiapas. In a crossover design, each subject acts as their own control, so we required the

participants to have a previous pregnancy experience. A logistic model was used to calculate the odds ratio for the outcome of having an adequate number of antenatal care visits. The analysis considered the period (during or before the pandemic) as well as perceived severity and susceptibility levels as independent variables.

Results

COVID-19 reduced antenatal care utilization by 50%. During the pandemic, the adjusted odds ratio for attending health antenatal care services was 0.83 (95% CI: 4.8, 14.5) compared to pre pandemics. Adjusted for fear of contagion, the mother's perception of severity was associated with an increased likelihood of an insufficient number of antenatal visits. OR = 0.25 (95% CI: 0.10, 0.65).

Conclusion

The risk perception for COVID-19 decreased the likelihood of receiving an adequate number of antenatal care visits. (Author)

Full URL: https://doi.org/10.1186/s12884-024-06748-w

2024-11168

Experiences of attending prenatal ultrasounds during the COVID-19 pandemic in Australia: A cross-sectional survey. Nightingale HJ, Watts C, Pham K (2025), Birth vol 52, no 1, March 2025, pp 100-111

Background

Prenatal ultrasounds form an important part of routine maternity care in Australia and indeed internationally. The COVID-19 pandemic necessitated rapid changes in society and healthcare to curb transmission, with evidence demonstrating detrimental impacts on childbearing women associated with these restrictions. However, experiences with pandemic restrictions for prenatal ultrasounds in relation to distress, patient expectations, and satisfaction are largely unknown. This study aimed to explore the experiences of pregnant women attending prenatal ultrasound during the pandemic in Australia.

Methods

A cross-sectional online survey of people in Australia who had undergone at least one prenatal ultrasound during the period of maternity care restrictions was performed. The survey included validated tools for assessing post-traumatic stress, satisfaction, and expectations with maternity care.

Results

A total of 1280 responses were obtained. Almost 37% of respondents returned a PCL-C score consistent with probable post-traumatic stress disorder. Unexpected ultrasound findings or a high PCL-C score were more likely to have higher expectations and lower levels of satisfaction with their maternity care experience. Having an ultrasound for pregnancy loss, fetal abnormality, and/or a prior post-traumatic stress disorder diagnosis were the strongest factors correlating with a high PCL-C score.

Discussion

The prevalence of post-traumatic stress symptoms in the study population is concerning and elucidates the distress experienced in association with prenatal ultrasounds during pandemic restrictions in Australia. Maternity services should acknowledge the high levels of service consumers with post-trauma symptoms and consider trauma-responsive maternity care adaptations in response to adverse perinatal outcomes for those afflicted with post-trauma and distress-related symptoms. (Author)

Full URL: https://doi.org/10.1111/birt.12867

2024-10973

The impact of COVID-19 infections on pregnancy outcomes in women. Xu K, Sun W, Yang S, et al (2024), BMC Pregnancy and Childbirth vol 24, no 562, August 2024

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Background
Given that viral infections can increase the risk of adverse pregnancy outcomes, such as spontaneous miscarriage, preterm premature rupture of membranes, and preterm birth, the effects of COVID-19, a novel emerging coronavirus disease rapidly spreading globally, on pregnancy outcomes have garnered significant attention.

Methods
We conducted a review of studies related to pregnant women infected with SARS-CoV-2 over the past five years (December 2019 to April 2023), utilizing search engines such as PubMed, Web of Science, and the China National Knowledge Infrastructure (CNKI). This study was registered with PROSPERO with ID: CRD42024540849.

Results
A total of 218 articles were screened, with 15 studies meeting the inclusion criteria for this research, including 12 cohort studies, one cross-sectional study, one case-control study, and one case series. Six studies found that the preterm birth rate was higher in the infected group compared to the control group; five studies showed that the cesarean section rate was higher in the infected group; three studies found that the APGAR scores of newborns were higher in the control group than in the infected group; three studies indicated that the mortality rate of newborns in the infected group was higher than that in the control group.

Conclusions
Our retrospective review suggests that compared to pregnant women not infected with SARS-CoV-2, those diagnosed with COVID-19 are more likely to experience adverse outcomes such as preterm birth, cesarean delivery, and low birth weight in newborns. (Author)
Full URL: https://doi.org/10.1186/s12884-024-06767-7

2024-10398

Utilisation of ANC services before and after the COVID-19 pandemic in selected resource-poor blocks of India: role of community health workers in Swabhimaan programme area. Dhillon P, Unisa S, Gupta A, et al (2023), BMC Health Services Research vol 23, no 864, August 2023

Introduction
COVID-19 has disrupted maternal and child health services. Community Health Workers (CHWs) supported the women by visiting pregnant women's homes and providing the MCH services as required. This study attempts to understand the role of CHW and its impact on the Ante-Natal Care (ANC) services pre-pandemic and post-Pandemic in the poor resource setting.

Methods
The Swabhimaan programme interventions were carried out in the selected blocks in the Indian States of Bihar, Odisha and Chhattisgarh with the objective to improve the nutritional status of mothers, pregnant women and adolescents living in resource-poor blocks of three selected states during 2016–2022. Cross-sectional surveys, namely pre-pandemic (2018–19) and post-pandemic (2021–22) of pregnant and mothers of under two children, utilised to fulfil the objectives of this study. These surveys are part of Swabhimaan evaluation, a community-based non-randomised controlled study.

Results
The ANC services received by women have increased over time from 2015 to 2022. Our findings confirm that the ground-level community and health systems were active during the pandemic, and the results show significant improvement. Additionally, the women supported by the CHW have substantially improved pregnancy registration, first ANC, Tetanus injection, consumption of Iron Folic Acid, Calcium and deworming tablets than those who did not. Propesnsity Score Matching analysis shows that the average treatment effect on the various ANC services of having the support of CHW is significant.

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Conclusion

This study shows the vital role of CHWs in utilising various Maternal and Child Health services. Better linkage and networking of the CHWs with the community will ensure health service delivery regularly and in an emergency like a pandemic and develop resilience. (Author)

Full URL: https://doi.org/10.1186/s12913-023-09781-1

2024-10393

From purists to pragmatists: a qualitative evaluation of how implementation processes and contexts shaped the uptake and methodological adaptations of a maternal and neonatal quality improvement programme in South Africa prior to, and during COVID-19. Odendaal W, Chetty T, Goga A, et al (2023), BMC Health Services Research vol 23, no 819, July 2023

Background

Despite progress, maternal and neonatal mortality and still births remain high in South Africa. The South African National Department of Health implemented a quality improvement (QI) programme, called Mphatlalatsane, to reduce maternal and neonatal mortality and still births. It was implemented in 21 public health facilities, seven per participating province, between 2018 and 2022.

Methods

We conducted a qualitative process evaluation of the contextual and implementation process factors' influence on implementation uptake amongst the QI teams in 15 purposively selected facilities. Data collection included three interview rounds with the leaders and members of the QI teams in each facility; intermittent interviews with the QI advisors; programme documentation review; observation of programme management meetings; and keeping a fieldwork journal. All data were thematically analysed in Atlas.ti. Implementation uptake varied across the three provinces and between facilities within provinces.

Results

Between March and August 2020, the COVID-19 pandemic disrupted uptake in all provinces but affected QI teams in one province more severely than others, because they received limited pre-pandemic training. Better uptake among other sites was attributed to receiving more QI training pre-COVID-19, having an experienced QI advisor, and good teamwork. Uptake was more challenging amongst hospital teams which had more staff and more complicated MNH services, versus the primary healthcare facilities. We also attributed better uptake to greater district management support. A key factor shaping uptake was leaders' intrinsic motivation to apply QI methodology. We found that, across sites, organic adaptations to the QI methodology were made by teams, started during COVID-19. Teams did away with rapid testing of change ideas and keeping a paper trail of the steps followed. Though still using data to identify service problems, they used self-developed audit tools to record intervention effectiveness, and not the prescribed tools.

Conclusions

Our study underscores the critical role of intrinsic motivation of team leaders, support from experienced technical QI advisors, and context-sensitive adaptations to maximise QI uptake when traditionally recognised QI steps cannot be followed. (Author)

Full URL: https://doi.org/10.1186/s12913-023-09826-5

2024-10390

Assessing safe and personalised maternity and neonatal care through a pandemic: a case study of outcomes and experiences in two trusts in England using the ASPIRE COVID-19 framework. Neal S, Stone L, Moncrieff G, et al (2023), BMC Health Services Research vol 23, no 675, June 2023

Background

The COVID-19 pandemic has resulted in profound and far-reaching impacts on maternal and newborn care and outcomes. As part of the ASPIRE COVID-19 project, we describe processes and outcome measures relating to safe and

personalised maternity care in England which we map against a pre-developed ASPIRE framework to establish the potential impact of the COVID-19 pandemic for two UK trusts.

Methods
We undertook a mixed-methods system-wide case study using quantitative routinely collected data and qualitative data from two Trusts and their service users from 2019 to 2021 (start and completion dates varied by available data). We mapped findings to our prior ASPIRE conceptual framework that explains pathways for the impact of COVID-19 on safe and personalised care.

Results
The ASPIRE framework enabled us to develop a comprehensive, systems-level understanding of the impact of the pandemic on service delivery, user experience and staff wellbeing, and place it within the context of pre-existing challenges.

Maternity services experienced some impacts on core service coverage, though not on Trust level clinical health outcomes (with the possible exception of readmissions in one Trust). Both users and staff found some pandemic-driven changes challenging such as remote or reduced antenatal and community postnatal contacts, and restrictions on companionship. Other key changes included an increased need for mental health support, changes in the availability and uptake of home birth services and changes in induction procedures. Many emergency adaptations persisted at the end of data collection. Differences between the trusts indicate complex change pathways. Staff reported some removal of bureaucracy, which allowed greater flexibility.

During the first wave of COVID-19 staffing numbers increased, resolving some pre-pandemic shortages: however, by October 2021 they declined markedly. Trying to maintain the quality and availability of services had marked negative consequences for personnel. Timely routine clinical and staffing data were not always available and personalised care and user and staff experiences were poorly captured.

Conclusions
The COVID-19 crisis magnified pre-pandemic problems and in particular, poor staffing levels. Maintaining services took a significant toll on staff wellbeing. There is some evidence that these pressures are continuing. There was marked variation in Trust responses. Lack of accessible and timely data at Trust and national levels hampered rapid insights. The ASPIRE COVID-19 framework could be useful for modelling the impact of future crises on routine care. (Author)
Full URL: https://doi.org/10.1186/s12913-023-09669-0

2024-10368
Maternal and perinatal outcomes in mixed antenatal care modality implementing telemedicine in the southwestern region of Colombia during the COVID-19 pandemic. Escobar MF, Gallego JC, Echavarria MP, et al (2023), BMC Health Services Research vol 23, no 259, March 2023

Introduction
Contingency measures due to the COVID-19 pandemic limited access to routine prenatal care for pregnant women, increasing the risk of pregnancy complications due to poor prenatal follow-up, especially in those patients at high obstetric risk. This prompted the implementation and adaptation of telemedicine.

Objective
We aim to evaluate the maternal and perinatal outcomes of patients who received prenatal care in-person and by telemedicine.

Methods
We conducted a retrospective observational cohort study of pregnant women who received exclusive in-person and alternate (telemedicine and in-person) care from March to December 20,202, determining each group's maternal and

neonatal outcomes.

Results
A total of 1078 patients were included, 156 in the mixed group and 922 in the in-person group. The patients in the mixed group had a higher number of prenatal controls (8 (6–9) vs 6 (4–8) p < 0.001), with an earlier gestational age at onset (7.1 (6–8.5) vs 9.3 (6.6–20.3), p < 0.001), however, they required a longer hospital stay (26 (16,67%) vs 86 (9,33%), p = 0.002) compared to those attended in-person; there were no significant differences in the development of obstetric emergencies, maternal death or neonatal complications.

Discussion
Incorporating telemedicine mixed with in-person care could be considered as an alternative for antenatal follow-up of pregnant women in low- and middle-income countries with barriers to timely and quality health care access. (Author)
Full URL: https://doi.org/10.1186/s12913-023-09255-4

2024-10219

Post–Acute Sequelae of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) After Infection During Pregnancy. Metz TD, Reeder HT, Clifton RG, et al (2024), Obsterics & Gynecology vol 144, no 3, September 2024, pp 411-420

OBJECTIVE:
To estimate the prevalence of post–acute sequelae of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection (PASC) after infection with SARS-CoV-2 during pregnancy and to characterize associated risk factors.

METHODS:
In a multicenter cohort study (NIH RECOVER [Researching COVID to Enhance Recovery]-Pregnancy Cohort), individuals who were pregnant during their first SARS-CoV-2 infection were enrolled across the United States from December 2021 to September 2023, either within 30 days of their infection or at differential time points thereafter. The primary outcome was PASC, defined as score of 12 or higher based on symptoms and severity as previously published by the NIH RECOVER-Adult Cohort, at the first study visit at least 6 months after the participant's first SARS-CoV-2 infection. Risk factors for PASC were evaluated, including sociodemographic characteristics, clinical characteristics before SARS-CoV-2 infection (baseline comorbidities, trimester of infection, vaccination status), and acute infection severity (classified by need for oxygen therapy). Multivariable logistic regression models were fitted to estimate associations between these characteristics and presence of PASC.

RESULTS:
Of the 1,502 participants, 61.1% had their first SARS-CoV-2 infection on or after December 1, 2021 (ie, during Omicron variant dominance); 51.4% were fully vaccinated before infection; and 182 (12.1%) were enrolled within 30 days of their acute infection. The prevalence of PASC was 9.3% (95% CI, 7.9–10.9%) measured at a median of 10.3 months (interquartile range 6.1–21.5) after first infection. The most common symptoms among individuals with PASC were postexertional malaise (77.7%), fatigue (76.3%), and gastrointestinal symptoms (61.2%). In a multivariable model, the proportion PASC positive with vs without history of obesity (14.9% vs 7.5%, adjusted odds ratio [aOR] 1.65, 95% CI, 1.12–2.43), depression or anxiety disorder (14.4% vs 6.1%, aOR 2.64, 95% CI, 1.79–3.88) before first infection, economic hardship (self-reported difficulty covering expenses) (12.5% vs 6.9%, aOR 1.57, 95% CI, 1.05–2.34), and treatment with oxygen during acute SARS-CoV-2 infection (18.1% vs 8.7%, aOR 1.86, 95% CI, 1.00–3.44) were associated with increased prevalence of PASC.

CONCLUSION:
The prevalence of PASC at a median time of 10.3 months after SARS-CoV-2 infection during pregnancy was 9.3% in the NIH RECOVER-Pregnancy Cohort. The predominant symptoms were postexertional malaise, fatigue, and gastrointestinal symptoms. Several socioeconomic and clinical characteristics were associated with PASC after infection during pregnancy.

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CLINICAL TRIAL REGISTRATION:
ClinicalTrials.gov, NCT05172024. (Author)

2024-10041

Preliminary findings on the experiences of care for women who suffered early pregnancy losses during the COVID-19 pandemic: a qualitative study. Silverio SA, George-Carey R, Memtsa M, et al (2024), BMC Pregnancy and Childbirth vol 24, no 522, August 2024

Background
Women who suffer an early pregnancy loss require specific clinical care, aftercare, and ongoing support. In the UK, the clinical management of early pregnancy complications, including loss is provided mainly through specialist Early Pregnancy Assessment Units. The COVID-19 pandemic fundamentally changed the way in which maternity and gynaecological care was delivered, as health systems moved to rapidly reconfigure and re-organise services, aiming to reduce the risk and spread of SARS-CoV-2 infection. PUDDLES is an international collaboration investigating the pandemic's impact on care for people who suffered a perinatal bereavement. Presented here are initial qualitative findings undertaken with UK-based women who suffered early pregnancy losses during the pandemic, about how they navigated the healthcare system and its restrictions, and how they were supported.

Methods
In-keeping with a qualitative research design, in-depth semi-structured interviews were undertaken with an opportunity sample of women (N = 32) who suffered any early pregnancy loss during the COVID-19 pandemic. Data were analysed using a template analysis to understand women's access to services, care, and networks of support, during the pandemic following their pregnancy loss. The thematic template was based on findings from parents who had suffered a late-miscarriage, stillbirth, or neonatal death in the UK, during the pandemic.

Results
All women had experienced reconfigured maternity and early pregnancy services. Data supported themes of: 1) COVID-19 Restrictions as Impractical & Impersonal; 2) Alone, with Only Staff to Support Them; 3) Reduction in Service Provision Leading to Perceived Devaluation in Care; and 4) Seeking Their Own Support. Results suggest access to early pregnancy loss services was reduced and pandemic-related restrictions were often impractical (i.e., restrictions added to burden of accessing or receiving care). Women often reported being isolated and, concerningly, aspects of early pregnancy loss services were reported as sub-optimal.

Conclusions
These findings provide important insight for the recovery and rebuilding of health services in the post-pandemic period and help us prepare for providing a higher standard of care in the future and through any other health system shocks. Conclusions made can inform future policy and planning to ensure best possible support for women who experience early pregnancy loss. (Author)

Full URL: https://doi.org/10.1186/s12884-024-06721-7

2024-10036

Telehealth in antenatal care: recent insights and advances. Atkinson J, Hastie R, Walker S, et al (2023), BMC Medicine vol 21, no 332, August 2023

Background
For decades, antenatal care in high-resource settings has involved 12–14 face-to-face visits across pregnancy. The COVID-19 pandemic forced many care providers to rapidly embrace telehealth to reduce face-to-face visits. Here we review recent advances in telehealth used to provide antenatal care.

Main body
We conducted a narrative review examining the impact of telehealth on obstetric care. Two broad types of telehealth

are used in antenatal care. The first is real-time telehealth, where consultations are done virtually instead of face-to-face. The second is remote monitoring, where in-clinic physical examinations are replaced with at-home alternatives. These can include blood pressure monitoring, fetal heart rate monitoring, and emerging technologies such as tele-ultrasound. Large cohort studies conducted during the pandemic era have shown that telehealth appears not to have increased adverse clinical outcomes for mothers or babies. However, further studies may be required to confidently conclude rare outcomes are unchanged, such as maternal mortality, serious morbidity, or stillbirth. Health economic studies suggest telehealth has the potential to reduce the financial cost of care provision. Telehealth in antenatal care seems to be acceptable to both pregnant women and healthcare providers.

Conclusion
Adoption of telehealth technologies may improve the antenatal care experience for women and reduce healthcare expenditure without adversely impacting health outcomes for the mother or baby. More studies are warranted to confirm telehealth does not alter the risk of rare outcomes such as maternal or neonatal mortality. (Author)
Full URL: https://doi.org/10.1186/s12916-023-03042-y

2024-09612

Oscillating autonomy: a grounded theory study of women's experiences of COVID-19 infection during pregnancy, labour and birth, and the early postnatal period. Peterson L, Bridle L, Dasgupta T, et al (2024), BMC Pregnancy and Childbirth vol 24, no 511, July 2024

Background
Testing positive for COVID-19 was associated with higher rates of detrimental psycho-social and physical health outcomes. The COVID-19 pandemic caused unprecedented disruption to everyday life. This included major reconfiguration of maternal, child, and perinatal mental health and care services and provision. This study aimed to investigate the experiences of those who tested positive for COVID-19 during pregnancy, labour and birth, or the early postnatal period.

Methods
National on-line recruitment from across the United Kingdom resulted in sixteen mothers being invited to qualitative semi-structured interviews to understand the experiences of mothers who had been infected by COVID-19 during pregnancy, labour and birth, or the early postnatal period. Interviews were conducted, recorded, and transcribed using video-conferencing software. A Grounded Theory approach was used to analyse the data gathered pertaining to women's experiences of their positive COVID-19 diagnosis during pregnancy, labour and birth, or the early postnatal period.

Results
The theory of 'Oscillating Autonomy – Losing and Seeking to Regain Control by Striving for Agency' was developed, comprising three main themes: 'Anxious Anticipation: The fear of infection was worse than COVID-19 itself'; 'Fluctuating Agency: What changed when COVID-19 took control'; and 'Reclaiming Control: Seeking reassurance during COVID-19 positivity'. Testing positive for COVID-19 whilst pregnant, during labour or birth, or in the early postnatal period was associated with a perceived loss of control. Those who were able to regain that control felt more secure in their situation.

Conclusions
Support was paramount to manage increased vulnerability, as was reassurance achieved by information seeking and positive action including increased health monitoring and COVID-19 vaccination. (Author)
Full URL: https://doi.org/10.1186/s12884-024-06685-8

2024-09599

Peripartum outcomes and immune responses after SARS-CoV-2 infection in the third trimester of pregnancy. Shen Q,

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Dong S, Shah NK, et al (2024), BMC Pregnancy and Childbirth vol 24, no 498, July 2024

Background

SARS-CoV-2 infection in pregnant women during the third trimester resulted in overall adverse pregnancy outcomes compared to non-infected controls and a unique humoral and cellular response at delivery. In this study we aimed to assess the impact of SARS-CoV-2 infection on maternal/neonatal peripartum outcomes andimmunological profiles.

Method

In this study, we recruited 304 SARS-CoV-2 infected pregnant women and 910 SARS-CoV-2 non-infected pregnant women who were admitted for delivery. Peripartum and neonates' outcomes response to SARS-CoV-2 infection were analyzed. Furthermore, we characterized the antibody and cytokines profile in SARS-CoV-2 infected maternal blood (MB) and cord blood (CB). We also assessed routine laboratory tests and liver function tests in MB before labor. Unpaired T test, Mann-Whitney test and Spearman test were used to analyze the data.

Results

SARS-CoV-2 infected pregnant women were significantly associated with increased risk of adverse pregnancy outcomes, including preterm labor (13.8% vs. 9.5%, p = 0.033) and meconium-stained amniotic fluid (8.9% vs. 5.5%, p = 0.039). The risk of low birth weight (< 2500 g) (10.5% vs. 6.5%, p = 0.021) and Apgar score < 8 at 1-minute (9.2% vs. 5.8%, p = 0.049) significantly increased in newborns from COVID-19 positive mothers than their counterparts. Our results showed that antibodies were increased in adverse-outcome SARS-CoV-2 infected mothers and their neonates, and abnormal proportion of immune cells were detected in SARS-CoV-2 infected mothers. While the immune response showed no difference between adverse-outcome infected pregnant women and normal-outcome infected pregnant women. Thus, SARS-CoV-2 infection during the third trimester of pregnancy induced a unique humoral and cellular response at delivery.

Conclusion

SARS-CoV-2 infection closer to delivery could incline to adverse pregnancy outcomes. Therefore, the utmost care is required for SARS-CoV-2 infected pregnant women and their newborns.

Trial registration

The study protocol was approved by the Institutional Review Board of the First Hospital of Jilin University with the approval code number 23K170-001, and informed consent was obtained from all enrolled patients prior to sample collection. (Author)

Full URL: https://doi.org/10.1186/s12884-024-06707-5

2024-09538

Pre-Pandemic Versus Early COVID-19 Perinatal Outcomes at a Military Hospital. Gibson BL, Urbieta D, Sweeney S, et al (2024), MCN - American Journal of Maternal/Child Nursing vol 49, no 4, July/August 2024, pp 219-224

Purpose:

The purpose of this study was to examine the impact of the first year of COVID-19 pandemic on maternal and neonatal outcomes at a large military treatment facility in Southern California.

Study Design and Methods:

A retrospective review of maternal and neonatal medical records was conducted between January 1, 2019, and December 31, 2020. Outcomes measured included stillbirth rate, neonatal intensive care unit admission, neonatal death, cesarean birth, and postpartum hemorrhage.

Results:

A total of 4,425 records were analyzed. Rates of stillbirth between the years did not vary. The neonatal death rate decreased more than 50% in 2020 (p = .149). Cesarean births rose by 2.7% in 2020 (p = .046). Rates of postpartum hemorrhage did not vary between years.

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Clinical Implications:
The impact of COVID-19 on maternal and neonatal outcomes at a military treatment facility in the first year of the COVID-19 pandemic provides guidance for optimizing perinatal health care. Vertical transmission of COVID-19 is low and routine testing of asymptomatic neonates of positive mothers may not be necessary. COVID-19 infections should not be an indication for cesarean birth and are not associated with neonatal deaths or NICU admission. (Author)

2024-09467

COVID-19 infection during pregnancy and risk of early and late spontaneous miscarriages: A matched case–control population-based study. Karawani R, Barel O, Lev-Shalem L, et al (2024), International Journal of Gynecology & Obstetrics vol 167, no 3, December 2024, pp 1146-1151

Objectives
To evaluate the effect of COVID-19 during the first trimester on the rate of first- and second-trimester miscarriages. Secondary aims include the effect on stillbirths and the correlation between symptom severity and pregnancy outcomes.

Methods
A retrospective matched case–control population-based study extracted data from electronic medical records of a nationwide database of the second largest healthcare organization that provides medical services to over 2 000 000 patients in Israel. Pregnancy outcomes in COVID-19-positive pregnant patients in 2020 were compared with an age- and gestational-week-matched 1:2 case–control cohort of pre-pandemic pregnant patients that received medical care in 2019.

Results
Of 68 485 pregnant women treated in 2020, 2333 were COVID-19-positive during pregnancy: 215 during the first trimester, 791 during the second trimester, and 1327 during the third trimester. We compared these data with the control cohort of 4580 pre-pandemic pregnant patients. The rate of spontaneous miscarriage was significantly higher 146/2187 (6.3%) in COVID-19-positive patients versus 214/4580 (4.7%), ($P < 0.01$, odds ratio 1.34, 95% confidence interval 1.094–1.691). Most miscarriages occurred during the first trimester in both groups, yet the rates were significantly higher in the study group (5.4% vs 3.8%, $P < 0.01$). There was no association between COVID-19 severity and miscarriage risk.

Conclusion
COVID-19 diagnosis during early pregnancy increased the rate of spontaneous miscarriage in our cohort compared with an age- and gestational-week-matched pre-pandemic control group. (Author)

2024-09438

Pregnancy-related and Neonatal Outcomes during Omicron Variant-Dominant COVID-19 Pandemic among the Black-Dominant Population. Min DD, Min JH (2025), American Journal of Perinatology vol 42, no 3, February 2025, pp 301-309

Objective This study aimed to determine the effect of the Omicron variant on pregnancy-related and neonatal outcomes among the Black-dominant population.

Study Design We performed a single-center, retrospective cohort study during the prepandemic period from December 1, 2019, to February 29, 2020, and the Omicron surging period from December 1, 2021, to February 28, 2022. A total of 518 pregnant women were admitted for delivery during the study period. Multiple gestations (n = 21) and deliveries at less than 20 weeks of gestation (n = 5) were excluded. We analyzed and compared the sociodemographic and clinical data from mothers and their neonates between the two cohorts as well as between severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2) positive and negative mothers during the Omicron surge. Subgroup analyses were also conducted specifically among the Black-only population.

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Results The cohorts were predominantly Black (88.6%), with smaller proportions of Hispanic (8.9%), Asian (0.8%), White (0.8%), and other ethnicities (0.8%). Of 492 singleton deliveries, 275 live births, 8 (2.8%) stillbirths, and 31 (11.3%) preterm births (PTBs) occurred during the prepandemic period, and 207 live births, 2 (1%) stillbirths, and 33 (15.9%) PTBs occurred during the Omicron wave. There was no statistically significant difference in the rates of PTBs, stillbirths, medically indicated PTBs, and cesarean delivery between the two cohorts. SARS-CoV-2-positive mothers were not at an increased risk of adverse outcomes. However, neonatal intensive care unit (NICU) admission rate significantly increased among neonates born to SARS-CoV-2 positive mothers compared with negative mothers (32.3 vs. 16.5%, p = 0.038). In subgroup analyses among Black individuals, this difference was not observed.

Conclusion There was no significant difference in pregnancy-related or neonatal outcomes in the Black-dominant population between the two cohorts. SARS-CoV-2 infection did not alter these findings except for an increased NICU admission rate among neonates born to SARS-CoV-2-positive mothers.

Key Points

Most pregnant women infected with SARS-CoV-2 during the Omicron wave were asymptomatic.

The Omicron wave did not increase the risk of pregnancy-related or neonatal adverse outcomes when compared with the prepandemic period.

Maternal SARS-CoV-2 infection increased NICU admission rate.

Among Black individuals, no significant increase in adverse outcomes was observed during the Omicron pandemic. (Author)

2024-09425

Are Neonatal Birth Weights Reduced in Low-Risk Patients Diagnosed with COVID-19 during Pregnancy?. Foster HS, Forkpa M, Van Tienhoven XA, et al (2025), American Journal of Perinatology vol 42, no 3, February 2025, pp 350-354

Objective Studies have shown that the 2019 novel coronavirus disease (COVID-19) may be associated with an increased risk of adverse pregnancy outcomes including preeclampsia, preterm birth, and stillbirth. However, the relationship between COVID-19 and abnormal fetal growth (i.e., low neonatal birth weight) has not been elucidated. Because other viruses affect fetal growth, obstetrical providers began to recommend ultrasound studies during the third trimester to assess fetal growth in patients with COVID-19 during pregnancy. The aim of this study was to determine if neonatal birth weight was different between low-risk patients diagnosed with COVID-19 during pregnancy and low-risk patients without COVID-19 in pregnancy, to ascertain if third trimester growth ultrasound is warranted in this patient population.

Study Design We performed a retrospective cohort study of low-risk pregnant patients (who had no other indications for sonographic fetal surveillance during the third trimester) with and without COVID-19 during pregnancy. Patient demographics, gestational dating, neonatal birth weights, and corresponding Alexander growth curve birth weight percentiles were collected. The primary outcome was small-for-gestational age (SGA) neonates, defined as birth weight < 10th percentile for gestational age at delivery (SGA10).

Results Our cohort (N = 513) included 248 COVID-19-exposed patients and 265 patients who did not have COVID-19 during pregnancy. Gestational age at delivery and average neonatal birth weights were similar in COVID-19-exposed (38 weeks 5 days, 3,266 g) and unexposed patients (38 weeks 4 days, 3,224 g; p = 0.434, 0.358). Rates of SGA10 neonates were similar in the COVID-19-exposed (22/248, 8.9%) and -unexposed (23/265, 8.7%, p = 0.939) groups. Timing and severity of COVID-19 during pregnancy also were not associated with rates of SGA neonates.

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Conclusion In a cohort of low-risk patients, rates of SGA neonates were similar in patients with and without COVID-19 during pregnancy. These findings suggest that ultrasound surveillance to detect fetal growth restriction in low-risk patients with COVID-19 during pregnancy is not warranted.

Key Points

COVID-19 may be associated with fetal growth restriction.

There are normal infant weights in patients with COVID-19 in pregnancy.

Growth ultrasound is not needed in patients with COVID-19. (Author)

2024-09268

Disparities in perinatal COVID-19 infection and vaccination. Dubois B, Mills AN, Jessel RH, et al (2024), Seminars in Perinatology vol 48, no 4, June 2024, 151923

The COVID-19 pandemic exposed and exacerbated persistent health inequities in perinatal populations, resulting in disparities of maternal and fetal complications. In this narrative review, we present an adapted conceptual framework of perinatal social determinants of health in the setting of the COVID-19 pandemic and use this framework to contextualize the literature regarding disparities in COVID-19 vaccination and infection. We synthesize how elements of the structural context, individual socioeconomic position, and concrete intermediary determinants influence each other and perinatal COVID-19 vaccination and infection, arguing that systemic inequities at each level contribute to observed disparities in perinatal health outcomes. From there, we identify gaps in the literature, propose mechanisms for observed disparities, and conclude with a discussion of strategies to mitigate them. (Author)

2024-09265

COVID-19 therapeutics for the pregnant patient. Triebwasser JE, Davies JK, Nestani A (2024), Seminars in Perinatology vol 48, no 4, June 2024, 151920

SARS-CoV-2 infection can cause severe disease among pregnant persons. Pregnant persons were not included in initial studies of therapeutics for COVID-19, but cumulative experience demonstrates that most are safe for pregnant persons and the fetus, and effective for prevention or treatment of severe COVID-19. (Author)

2024-09264

Impact of SARS-CoV-2 infection during pregnancy on the placenta and fetus. Li A, Schwartz DA, Vo A, et al (2024), Seminars in Perinatology vol 48, no 4, June 2024, 151919

Pregnant people and their fetuses are vulnerable to adverse health outcomes from coronavirus 2019 disease (COVID-19) due to infection with the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). COVID-19 has been associated with higher rates of maternal mortality, preterm birth, and stillbirth. While SARS-CoV-2 infection of the placenta and vertical transmission is rare, this may be due to the typically longer time interval between maternal infection and testing of the placenta and neonate. Placental injury is evident in cases of SARS-CoV-2-associated stillbirth with massive perivillous fibrin deposition, chronic histiocytic intervillositis, and trophoblast necrosis. Maternal COVID-19 can also polarize fetal immunity, which may have long-term effects on neurodevelopment. Although the COVID-19 pandemic continues to evolve, the impact of emerging SARS-CoV-2 variants on placental and perinatal injury/mortality remains concerning for maternal and perinatal health. Here, we highlight the impact of COVID-19 on the placenta and fetus and remaining knowledge gaps. (Author)

2024-09263

Neonatal-perinatal collaboration during the COVID-19 pandemic. K M, Dw K, N A, et al (2024), Seminars in Perinatology vol 48, no 4, June 2024, 151918

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The COVID-19 pandemic required perinatal clinicians to address the individual medical needs of the pregnant person and the fetus as well as the interdependent considerations of the maternal/newborn dyad. Regional, national and international collaborative groups utilized existing structures and in some cases, formed new partnerships to rapidly collect perinatal information. The urgent need to care for at-risk and infected pregnant persons required these groups to develop practical approaches to collect the data needed to safely inform practice. Here we will summarize the findings of five collaborative studies that leveraged differing methods to inform perinatal pandemic care. (Author)

2024-09233

Modes of delivery and indications in women with COVID-19: a regional observational study in Japan. Magawa S, Maki S, Tamaishi Y, et al (2024), Journal of Obstetrics and Gynaecology vol 44, no 1, 2024, 2362968

Background

During the coronavirus disease (COVID-19) pandemic, caesarean section (CS) has been the preferred deliver method for pregnant women with COVID-19 in order to limit the use of hospital beds and prevent morbidity among healthcare workers.

Methods

To evaluate delivery methods used during the COVID-19 pandemic as well as the rates of adverse events and healthcare worker morbidity associated with caesarean deliveries.

Methods

We investigated maternal and neonatal backgrounds, delivery methods, indications and complication rates among pregnant women with COVID-19 from December 2020 to August 2022 in Mie Prefecture, Japan. The predominant mutation period was classified as the pre-Delta, Delta and Omicron epoch.

Results

Of the 1291 pregnant women with COVID-19, 59 delivered; 23 had a vaginal delivery and 36 underwent CS. Thirteen underwent CS with no medical indications other than mild COVID-19, all during the Omicron epoch. Neonatal complications occurred significantly more often in CS than in vaginal delivery. COVID-19 in healthcare workers was not attributable to the delivery process.

Conclusion

The number of CS with no medical indications and neonatal complications related to CS increased during the COVID-19 pandemic. Although this study included centres that performed vaginal deliveries during COVID-19, there were no cases of COVID-19 in healthcare workers. It is possible that the number of CS and neonatal complications could have been reduced by establishing a system for vaginal delivery in pregnant women with recent-onset COVID-19, given that there were no cases of COVID-19 among the healthcare workers included in the study. (Author)

Full URL: https://doi.org/10.1080/01443615.2024.2362968

2024-09184

Trends in the Incidence of Gestational Diabetes Mellitus Among the Medicaid Population Before and During the COVID-19 Pandemic. Lin J, Horswell R, Chu S, et al (2024), Journal of Women's Health vol 33, no 9, September 2024, pp 1276–1282

Importance: Although there are many regional and national studies on the trends in the incidence of gestational diabetes mellitus (GDM), the trends in the incidence of GDM among the Medicaid population are lacking, especially before and during coronavirus disease of 2019 (COVID-19).

Objective: To investigate the trends in the incidence of GDM before and during COVID-19 pandemic (2016–2021) among the Louisiana Medicaid population.

Design, Setting, and Participants: This study included 111,936, Louisiana Medicaid pregnant women of age 18–50 between January 1, 2016, to December 31, 2021.

Main Outcomes and Measures: Pregnancies, GDM, and pre-pregnancy diabetes cases were identified by using the

Tenth Revisions of the International Classification of Disease code. The annual incidence of GDM and annual prevalence of pre-pregnancy diabetes were calculated for each age and race subgroup.
Results: The age-standardized incidence of GDM increased from 10.2% in 2016 to 14.8 in 2020 and decreased to 14.0% in 2021. The age-standardized prevalence of pre-pregnancy diabetes increased from 2.8% in 2016 to 3.4% in 2018 and decreased to 2.3% in 2021. The age-standardized rate of GDM was the highest among Asian women (23.0%), then White women (15.5%), and African American women (13.9%) (p for difference <0.001). The COVID-19 pandemic saw an increase in the incidence of GDM, with a rise in prominent GDM risk factors, such as obesity and sedentary behaviors, suggesting an association.
Conclusion and Relevance: The incidence of GDM significantly increased during the COVID-19 pandemic. Potential reasons might include increased sedentary behavior and increased prevalence of obesity. GDM is a major public health issue, and the prevention of GDM is particularly essential for the Louisiana Medicaid population owing to the high prevalence of GDM-related risk factors in this population. (Author)

2024-09043

Socioeconomic inequities during COVID 19 pandemic increase preterm birth and low birth weight in the most underprivileged. Viroga S, Briozzo L, Tomasso G, et al (2024), Journal of Maternal-Fetal and Neonatal Medicine vol 37, no 1, 2024, 2375015

Background
The mitigation measures implemented to face the healthcare emergency brought by COVID 19 pandemic generated an increase in socioeconomic inequities in the most underprivileged population which is also the most threatened in their human rights. In Uruguay, this population is assisted in the public health care system. To analyze how these measures impacted on these mothers and their neonates we selected outcomes that most contributed to neonatal mortality.

Objective
To analyze the incidence of Preterm Birth (PB), Intrauterine Growth Restriction (IUGR) and Low Birth Weight (LBW) in the public health care system in Uruguay, during the period of time in which the strictest measures were adopted to mitigate the COVID 19 pandemic in 2020 (para-pandemic period) compared to the same period in 2019 (pre-pandemic).

Methods
A retrospective, cross sectional, descriptive study was performed to compare PB, IUGR and LBW from 15 March to 30 September 2019 (before COVID 19 pandemic) to the same period of 2020 (when COVID 19 pandemic bloomed), in the public health care subsystem. The analysis was performed with data from the national perinatal database system (SIP).

Results
In 2020, a significative increase in PB, RR: 1.14 (CI 95%: 1.03–1.25), and in LBW, RR: 1.16 (CI 95% 1.02–1.33), was registered compared to 2019 (pre-pandemic period). IUGR also showed an increase, but without statistical significance (4.6% in 2019 vs 5.2% in 2020, RR 1.13 CI 95% 0.98–1.31). The compared groups showed no differences in the distribution of biological confounding variables that could explain the increase in incidence of the main outcomes.

Conclusions
In the absence of other factors that could explain the results we consider that social crisis associated to the restrictive measures implemented in the country to dwindle the effect of the pandemic exacerbated the adverse conditions that affect the reproductive process for those underprivileged women assisted in the public sector, increasing PB and LBW. It is important to consider the future impact of these results on neonatal and infant mortality and to implement social measures to reduce the damage as soon as possible. (Author)
Full URL: https://doi.org/10.1080/14767058.2024.2375015

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2024-09038

Covid-19 infection and vaccination during first trimester and risk of congenital anomalies: Nordic registry based study.
Magnus MC, Söderling J, Örtqvist AK, et al (2024), BMJ 17 July 2024, online

Objectives To evaluate the risk of major congenital anomalies according to infection with or vaccination against covid-19 during the first trimester of pregnancy.

Design Prospective Nordic registry based study.

Setting Sweden, Denmark, and Norway.

Participants 343 066 liveborn singleton infants in Sweden, Denmark, and Norway, with an estimated start of pregnancy between 1 March 2020 and 14 February 2022, identified using national health registries.

Main outcome measure Major congenital anomalies were categorised using EUROCAT (European Surveillance of Congenital Anomalies) definitions. The risk after covid-19 infection or vaccination during the first trimester was assessed by logistic regression, adjusting for maternal age, parity, education, income, country of origin, smoking, body mass index, chronic conditions, and estimated date of start of pregnancy.

Results 17 704 (5.2%) infants had a major congenital anomaly. When evaluating risk associated with covid-19 infection during the first trimester, the adjusted odds ratio ranged from 0.84 (95% confidence interval 0.51 to 1.40) for eye anomalies to 1.12 (0.68 to 1.84) for oro-facial clefts. Similarly, the risk associated with covid-19 vaccination during the first trimester ranged from 0.84 (0.31 to 2.31) for nervous system anomalies to 1.69 (0.76 to 3.78) for abdominal wall defects. Estimates for 10 of 11 subgroups of anomalies were less than 1.04, indicating no notable increased risk.

Conclusions Covid-19 infection and vaccination during the first trimester of pregnancy were not associated with risk of congenital anomalies. (Author)

2024-08798

Impact of COVID-19 Public Health Restrictions on the Pregnancy Experience: A Mixed-Methods Study. Gill S, Wong K, Cook C (2024), JOGC [Journal of Obstetrics and Gynaecology Canada] vol 46, no 6, June 2024, 102460

The COVID-19 pandemic impacted the provision of obstetrical care. This mixed-methods study explores pregnant women's experiences during the COVID-19 pandemic using an explanatory sequential design. The experiences and opinions of obstetrical patients were elicited using an online questionnaire and semi-structured interview as a follow-up. There were 162 completed questionnaires, and 17 interviews. Qualitative analysis themes included worries about the intrapartum experience, its impact on partners, and lack of postpartum support for breastfeeding and mental health. This study provides an understanding of how the pandemic impacted pregnancy experiences, and the potential future repercussions of isolation and restrictions on wellbeing during public health crises. (Author)

2024-08771

'No increased risk' of birth defects after Covid-19 infection or vaccine. Ford S (2024), Nursing Times 19 July 2024, online

Neither being infected with Covid-19 nor being vaccinated against it during the first trimester of pregnancy is linked with increased risk of major birth defects, according to Scandinavian researchers. (Author)

2024-08760

Impact of the COVID-19 pandemic on perinatal care and outcomes: A retrospective study in a tertiary hospital in Northern Ghana. Abdul-Mumin A, Bimpong KA, Cotache-Condor C, et al (2024), PLoS ONE vol 19, no 5, May 2024, e0301081

Background: Perinatal mortality remains a global challenge. This challenge may be worsened by the negative effects of the COVID-19 pandemic on maternal and child health.

Objectives: Examine the impact of the COVID-19 pandemic on perinatal care and outcomes in the Tamale Teaching Hospital in northern Ghana.

Methods: A hospital-based retrospective study was conducted in the Tamale Teaching Hospital. We compared antenatal care attendance, total deliveries, cesarean sections, and perinatal mortality before the COVID-19 pandemic (March 1, 2019 to February 28, 2020) and during the COVID-19 pandemic (March 1, 2020 to February 28, 2021). Interrupted time series analyses was performed to evaluate the impact of the COVID-19 pandemic on perinatal care and outcomes at TTH.

Results: A total number of 35,350 antenatal visits and 16,786 deliveries were registered at TTH from March 2019 to February 2021. Antenatal care, early neonatal death, and emergency cesarean section showed a rapid decline after the onset of the pandemic, with a progressive recovery over the following months. The total number of deliveries and fresh stillbirths showed a step change with a marked decrease during the pandemic, while the macerated stillbirths showed a pulse change, a temporary marked decrease with a quick recovery over time.

Conclusion: The COVID-19 pandemic had a negative impact on perinatal care and outcomes in our facility. Pregnancy monitoring through antenatal care should be encouraged and continued even as countries tackle the pandemic.

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Full URL: https://doi.org/10.1371/journal.pone.0301081

2024-08736

Pregnancy outcomes in women with severe acute respiratory syndrome coronavirus 2 reinfections compared to those with a single infection: a retrospective cohort study. Ma Y, Zhang Q, Shan Z, et al (2024), BMC Pregnancy and Childbirth vol 24, no 459, July 2024

Background

To assess pregnancy outcomes in women with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) reinfection.

Methods

This was a retrospective cohort study that included pregnant women who contracted coronavirus disease 2019 (COVID-19) once or twice during pregnancy and who gave birth between 1 October 2022 and 15 August 2023 in Shanghai First Maternity and Infant Hospital (Shanghai, China). We collected their clinical data and compared the frequency of adverse pregnancy outcomes between the reinfection group and the primary infection group, such as preterm birth, fetal growth restriction (FGR), hypertensive disorders of pregnancy (HDP), common pregnancy-related conditions, birth weight, and neonatal unit admission.

Results

We observed a 7.7% reinfection rate among the 1,405 women who contracted COVID-19 during pregnancy. There were no significant differences in the frequency of preterm birth, FGR, HDP, other common pregnancy-related conditions, birth weight, or rate of neonatal unit admission between the reinfection and single infection groups. All our participants were unvaccinated, and all had mild symptoms.

Conclusion

Our study showed no significant association between SARS-CoV-2 reinfection and adverse pregnancy outcomes. (Author)

Full URL: https://doi.org/10.1186/s12884-024-06657-y

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2024-08533

Mixed influence of COVID-19 on primary maternal and child health services in sub-Saharan Africa: a scoping review.

Camara BS, El Ayadi AM, Thea AS, et al (2024), Frontiers in Public Health 24 June 2024, online

Introduction: The COVID-19 pandemic profoundly affected the provision of and demand for routine health services in the world. The objective of this scoping review was to synthesize the influence of the COVID-19 pandemic on primary maternal and child health (MCH) services in sub-Saharan Africa.

Methods: The studies searched original studies reporting on the influence of the COVID-19 pandemic on primary MCH services. Four scientific databases (Pubmed, AJOL, CAIRN, CINAHL) and one gray literature database (Google Scholar) were used for this search. We also searched through the snowball citation approach and study reference lists.

Results: The influence of the COVID-19 pandemic on primary MCH services has been mixed in sub-Saharan Africa. Attendance at some health centers declined for antenatal care, deliveries, immunization, and pneumonia cases. Other health centers did not experience a significant influence of the pandemic on some of these services. In fact, antenatal care increased in a number of health centers. MCH service indicators which declined during COVID-19 were linked on the demand side to regulatory measures against COVID-19, the perceived unavailability of resources for routine services, the perceived negative attitude of staff in these facilities, the perceived transmission risk in primary health care facilities and the perceived anticipated stigma. On the supply side, factors included the lack of equipment in primary facilities, the lack of guidelines for providing care in the pandemic context, the regulatory measures against COVID-19 taken in these facilities, and the lack of motivation of providers working in these facilities.

Conclusion: This study recommends prioritizing the improvement of infection prevention measures in primary health care facilities for resilience of MCH indicators to epidemic crises. Improvement efforts should be tailored to the disparities in preventive measures between health centers. The identification of best practices from more resilient health centers could better guide these efforts. (Author)

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2024-08403

Gestational Weight Gain and Neonatal Biometry during the COVID-19 Pandemic: A Multicenter Observational Cohort.

Abdelwahab M, de Voest JA, Metz TD, et al (2025), American Journal of Perinatology vol 42, no 2, January 2025, pp 189-195

Objective This study aimed to test the hypothesis that being pregnant and delivering during the coronavirus disease 2019 (COVID-19) pandemic was associated with changes in gestational weight gain (GWG) or frequency of small- (SGA) or large-for-gestational-age (LGA) neonates.

Study Design Secondary analysis of a multicenter observational cohort comparing pregnant people who delivered during the COVID-19 pandemic (June–December 2020) to people who delivered prior to the pandemic (March–December 2019). Those with multiple gestations, fetuses with major congenital anomalies, implausible GWG values, unavailable body mass index (BMI), or who were severe acute respiratory syndrome coronavirus-2-positive were excluded. The primary outcome was frequency of optimal recommended GWG based on prepregnancy BMI. Neonatal outcomes included birth weight, ponderal index, and frequency of SGA, LGA, and small head circumference for live births. Multivariable regression analysis was used to assess associations between exposure to the pandemic and outcomes.

Results A total of 10,717 pregnant people were included in our analysis. A total of 4,225 pregnant people were exposed to the pandemic and 6,492 pregnant people delivered prior to the COVID-19 pandemic. Pregnant people exposed to the pandemic were older and more likely to have gestational diabetes. The frequency of appropriate GWG was 28.0% during the pandemic and 27.6% before the pandemic (adjusted odds ratio [aOR]: 1.02, 95% confidence interval [CI]: 0.93–1.11). Excessive GWG was more likely (54.9 vs. 53.1%; aOR: 1.08, 95% CI: 1.001–1.17), and inadequate

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GWG was less likely during the pandemic (17.0 vs. 19.3%; aOR: 0.86, 95% CI: 0.77–0.95). The frequency of SGA was 5.4% during the pandemic and 6.1% before the pandemic (aOR: 0.90, 95% CI: 0.76–1.06), and the frequency of LGA was 16.0% during the pandemic versus 15.0% before the pandemic (aOR: 1.06, 95% CI: 0.95–1.18). Other neonatal outcomes including birth weight percentile (62.1 [35.8–83.2] vs. 60.2 [34.4–82.2]; adjusted mean difference (aMD) = 1.50, 95% CI: −0.28 to 3.29), ponderal index (2.6 g/cm3 [2.4–2.8] in both groups; aMD = 0.01, 95% CI: 0.00–0.02), and small head circumference for livebirths (<10th percentile [8.2 vs. 8.1%; aOR: 1.03, 95% CI: 0.89–1.19], <3rd percentile [3.5 vs. 3.1%; aOR: 1.16, 95% CI: 0.93–1.44]) were similar between groups as well.

Conclusion Being pregnant and delivering during the COVID-19 pandemic was associated with a higher likelihood of excessive GWG and a lower likelihood of inadequate GWG. (Author)

2024-08269

Pregnancy outcomes before and during COVID-19 pandemic in Tamale Metropolis, Ghana: A retrospective cohort study. Asumadu ODK, Boah M, Chirawurah D, et al (2024), PLoS ONE vol 19, no 4, April 2024, e0302589

Background: The COVID-19 pandemic affected expectant mothers seeking maternal health services in most developing countries. Access and utilization of maternal health services including antenatal care (ANC) attendance and skilled delivery declined drastically resulting in adverse pregnancy outcomes. This study assessed pregnancy outcomes before and during COVID-19 pandemic in Tamale Metropolis, Ghana.

Methods/design: A retrospective cohort study design was employed. A random sampling technique was used to select 450 women who delivered before or during the COVID-19 pandemic in Tamale Metropolis, Ghana. The respondents were interviewed using structured questionnaire at their homes. In this study, the data collected were socio-demographics characteristics, ANC attendance, before or during pandemic delivery, place of delivery and birth outcomes. Chi-square test and bivariate logistic regression analyses were performed under significant level of 0.05 to determine factors associated with the outcome variables.

Result: Of the 450 respondents, 51.8% were between 26 and 30 years of age. More than half (52.2%) of the respondents had no formal education and 93.3% were married. The majority (60.4%) of the respondents described their residence as urban setting. About 31.6% of the women delivered before the pandemic. The COVID-19 pandemic influenced place of delivery. The proportion of women who attended at least one ANC visit (84.5% before vs 70.5% during), and delivered at a hospital (76.8% before vs 72.4% during) were higher before the pandemic. More women were likely to deliver at home during COVID-19 (OR: 2.38, 95%CI: 1.52-3.74, p<0.001). Similarly, there was statistically significance difference between before and during COVID-19 delivery on at least one ANC attendance (OR: 2.72, 95%CI: 1.58-1.67, p<0.001). Women who delivered during COVID-19 were about twice more likely to develop complications (OR: 1.72, 95%CI: 1.03-2.87, p = 0.04).

Conclusion: ANC attendance and health facility delivery decreased while pregnancy complications increased during COVID-19. During disease outbreaks, outreach engagement strategies should be devised to increase access and utilization of maternal health services for marginalized and underserved populations. The capacity of health workers should be strengthened through skills training to manage adverse birth outcomes.

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2024-08267

The experience of pregnant women and their families who were infected with covid-19 before vaccination: A qualitative approach within a multicenter study in Brazil. Soeiro RE, Souza RT, Bento SF, et al (2024), Midwifery vol 135, August

2024, 104018

Background

Pregnant and postpartum women infected by COVID-19 are at increased risk of adverse outcomes, including negative effects on their mental health. Brazilian maternal mortality rate due to COVID-19 is 2.5 times higher than overall mortality rates. This study aimed to understand how pregnant/postpartum women experienced the COVID-19 suspicion/investigation or confirmed infection in different Brazilian cities, the pandemic's consequences to women and their families, and their needs to improve maternal health services during public health emergencies.

Methods

We conducted a qualitative study with 27 women with COVID-19 and 6 of their family members, as part of a multicenter study among 15 maternity hospitals in Brazil. We applied in-depth interviews through telephone calls when women received the diagnostic or had a suspect infection and after 60 days. Another semi-structured interview was applied to their close family members. The interviews were considered through thematic analysis.

Results

From the thematic content analysis three major themes emerged from the first and second interviews: (Cucinotta and Vanelli, 2020) assistance received by the woman and newborn in the medical services; (World Health Organization (WHO) 2021) stigma/fear of contamination from health workers and from family and friends reported by the women; (Allotey et al., 2020) the COVID-19 pandemic impact.

Conclusion

Before the availability of the COVID-19 vaccine, pregnant women experienced fear of death, hospitalization, quarantine, loss of family members, and financial repercussions, resulting in physical, psychological, and socioeconomic impacts on these women's lives. (Author)

Full URL: https://doi.org/10.1016/j.midw.2024.104018

2024-08223

Impact of COVID-19 on antenatal care provision at public hospitals in the Sidama region, Ethiopia: A mixed methods study. Kassa ZY, Scarf V, Turkmani S, et al (2024), PLoS ONE vol 19, no 4, April 2024, e0301994

Background: Coronavirus disease 2019 (COVID-19) continues to pose a global public health threat. The pandemic overstretched already weak health systems in low- and low-middle-income countries, including Ethiopia. There is a paucity of studies on the impact of COVID-19 on antenatal care access, uptake, and provision in Ethiopia. This study examines the impact of COVID-19 on antenatal care provision in the Sidama region, Ethiopia.

Methods: A concurrent mixed-methods study was conducted between 14 February and 10 May 2022 at 15 public hospitals in the Sidama region. An interrupted times series design was applied for a quantitative study, which included data from all pregnant women who attended antenatal care before COVID-19 (12 months, March 2019 to February 2020) and during COVID-19 (six months, March to August 2020) at 15 public hospitals in the region. The total numbers in the antenatal care 1 cohort (at least one antenatal care contact) and antenatal care 4 cohort (at least four antenatal care contacts) were 15,150 and 5,850, respectively, forming a combined final dataset of 21,000 women. Routinely collected monthly data were derived from the hospitals' health management information system and imported into Stata version 17 for analysis. The mean monthly incidence rate ratio of antenatal care uptake was calculated using a Poisson regression model with a 95% confidence interval. Simultaneously, an exploratory study design was conducted for qualitative using in-depth interviews to explore maternity care providers' perceptions of the impact of COVID-19 on antenatal care access, uptake, and provision. Qualitative data were thematically analysed. The quantitative and qualitative findings were then integrated using the joint display technique.

Results: Our findings indicate a significant monthly decrease of 0.7% in antenatal care 1 and 1.8% in antenatal care 4 during the first six months of the pandemic. A lack of medical supplies, fear of contracting COVID-19, inadequate personal protective equipment, discrimination against those attending the hospital, and the absence of antenatal care

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guidelines for care provision, COVID-19 vaccine hesitancy and long waiting times for ANC led to disrupted access, uptake, and provision of antenatal care during COVID-19.

Conclusion and recommendations: Our findings demonstrate that the COVID-19 pandemic affected antenatal care access, uptake, and provision in the study area from March to August 2020. To mitigate disrupted antenatal care access, uptake and provision, antenatal care clinics should be equipped with medical supplies. It is crucial to maintain rapport between the community and maternity care providers and provide training for maternity care providers regarding the adapted/adopted guidelines during COVID-19 at the hospital grassroots level for use in the current and future pandemics. Pregnant women should have timely access to maternity care providers in order to maintain at least a minimum standard of care in current and future pandemics.

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Full URL: https://doi.org/10.1371/journal.pone.0301994

2024-08171

Influence of COVID-19 infection on early pregnancy outcomes in different periods around frozen embryo transfer. Ko Y, Chen L, Zhou C, et al (2024), BMC Pregnancy and Childbirth vol 24, no 440, June 2024

Purpose

The study aimed to investigate the potential influence of COVID-19 infection on embryo implantation and early development in women undergoing frozen embryo transfer (FET), with a specific focus on infections occurring at different periods around FET.

Methods

A retrospective analysis was performed on women who had undergone FET during a period marked by a significant surge in COVID-19 infection in Shanghai. All enrolled women experienced their first documented COVID-19 infection around the time of FET, ensuring that infections did not occur prior to oocyte retrieval. Participants were categorized into six groups based on the timing of infection: uninfected, ≥ 60 days, < 60 days before FET, 0–14 days, 15–28 days, and 29–70 days after FET. Clinical outcomes were compared across these groups.

Results

The infection rate among the total of 709 cases was 78.28%. Infected individuals exhibited either asymptomatic or mild symptoms. The ongoing pregnancy rates for the first four groups were 40.7%, 44.4%, 40.5%, and 34.2% (P = 0.709) respectively, biochemical pregnancy rates (59.1% vs. 61.1% vs. 67.6% vs. 55.7%, P = 0.471) and clinical pregnancy rates (49.6% vs. 55.6% vs. 55.4% vs. 48.1%, P = 0.749), all showed no significant differences. Early spontaneous abortion rates across all six groups were 18.3%, 20.0%, 25.0%, 28.9%, 5.4%, and 19.0% respectively, with no significant differences (P = 0.113). Multivariable logistic analysis revealed no significant correlation between the infection and ongoing pregnancy.

Conclusion

Asymptomatic or mild COVID-19 infections occurring around FET do not appear to have a significant adverse impact on early pregnancy outcomes. (Author)
Full URL: https://doi.org/10.1186/s12884-024-06646-1

2024-07922

COVID-19 is associated with early emergence of preeclampsia: results from a large regional collaborative. Hasbini YG, Sokol RJ, Green PM, et al (2024), Journal of Maternal-Fetal and Neonatal Medicine vol 37, no 1, 2024, 2345852

Objective: To investigate the relationship between preeclampsia and SARS-CoV-2 infection during pregnancy.

Methods: This was a retrospective cohort study of pregnant women between March and October 2020. Pregnant

patients admitted to 14 obstetrical centers in Michigan, USA formed the study population. Of the N = 1458 participants, 369 had SARS-CoV-2 infection (cases). Controls were uninfected pregnancies that were delivered in the same obstetric unit within 30 days of the index case. Robust Poisson regression was used to estimate relative risk (RR) of preterm and term preeclampsia and preeclampsia involving placental lesions. The analysis included adjustment for relevant clinical and demographic risk factors.Results: SARS-CoV-2 infection during pregnancy increased the risk of preeclampsia [adjusted aRR = 1.69 (1.26–2.26)], preeclampsia involving placental lesions [aRR = 1.97(1.14–3.4)] and preterm preeclampsia 2.48(1.48–4.17). Although the highest rate of preeclampsia was observed in patients infected with SARS-CoV-2 who were symptomatic (18.4%), there was increased risk even in asymptomatic SARS-CoV-2 infected patients (14.2%) relative to non-infected controls (8.7%) ($p < 0.05$). This association with symptomatology was also noted with preterm preeclampsia for which the rate doubled from 2.7% in controls to 5.2% in asymptomatic cases and reached 11.8% among symptomatic cases ($p < 0.05$). The rate of preterm preeclampsia among cases of pregnant people self-identified as Black reached 10.1% and was almost double the rate of the reminder of the group of infected pregnancies (5.3%), although the rate among uninfected was almost the same (2.7%) for both Black and non-Black groups (interaction $p = 0.05$).Conclusions: Infection with SARS-CoV-2 increases the risk of preeclampsia even in the absence of symptoms, although symptomatic persons are at even higher risk. Racial disparities in the development of preterm preeclampsia after SARS-CoV-2 infection may explain discrepancies in prematurity between different populations. (Author)

Full URL: https://doi.org/10.1080/14767058.2024.2345852

2024-07828

Placental SARS-CoV-2 Infection and Its Implications for Increased Risk of Adverse Pregnancy Outcomes. Wang B, Shen WB, Townsel C, et al (2025), American Journal of Perinatology vol 42, no 1, January 2025, pp 52-59

Objective Pregnant women are at increased risk of coronavirus disease 2019 (COVID-19). This could be explained through the prism of physiologic and immunologic changes in pregnancy. In addition, certain immunological reactions originate in the placenta in response to viral infections.

This study aimed to investigate whether severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2) can infect the human placenta and discuss its implications in the pathogenesis of adverse pregnancy outcomes.

Study Design We conducted a retrospective cohort study in which we collected placental specimens from pregnant women who had a laboratory-confirmed SARS-CoV-2 infection. We performed RNA in situ hybridization assay on formalin-fixed paraffin-embedded tissues to establish the in vivo evidence for placental infectivity by this corona virus. In addition, we infected trophoblast isolated from uninfected term human placenta with SARS-CoV-2 variants to further provide in vitro evidence for such an infectivity.

Results There was a total of 21 cases enrolled, which included 5 cases of spontaneous preterm birth (SPTB) and 2 intrauterine fetal demises (IUFDs). Positive staining of positive-sense strand of SARS-CoV-2 virions was detected in 15 placentas including 4 SPTB and both IUFDs. In vitro infection assay demonstrated that SARS-CoV-2 virions were highly capable of infecting both cytotrophoblast and syncytiotrophoblast.

Conclusion This study implies that placental SARS-CoV-2 infection may be associated with an increased risk of adverse obstetrical outcomes. (Author) [Erratum: American Journal of Perinatology, vol 42, no 1, January 2025, e1]

2024-07824

Vertical Transmission of SARS-CoV-2 during Pregnancy: A Prospective Italian Cohort Study. Costa S, Giordano L, Bottoni A, et al (2024), American Journal of Perinatology vol 41, no 8, June 2024, pp 1077-1085

Objective The extent of vertical transmission (VT) of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) from mothers their fetuses or neonates is still uncertain. We aimed to determine the incidence of VT.

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Study Design In this prospective cohort study. All mother diagnosed with SARS-CoV-2 infection at the time of delivery or up to 1 week prior and their neonates, managed in a tertiary referral hospital for pregnancy complicated by coronavirus disease 2019 (COVID-19) in Rome, from April 2 to December 22, 2020, were included. Maternal infection was defined as nasopharyngeal swab test results positive for SARS-CoV-2 reverse transcription-polymerase chain reaction (RT-PCR). Biological samples were collected before, at, and after delivery to test positivity for SARS-CoV-2 RT-PCR and anti-SARS-CoV-2-specific antibodies.

Results The cohort included 95 women and 96 neonates with documented SARS-CoV-2 test results. Four neonates (4.2%) tested positive. The incidence of VT, according to the guidance criteria for diagnosing perinatal SARS-CoV-2 infection, was 5.2%. Neonatal symptoms were due to prematurity or fetal distress: symptomatic infants had lower median (min–max) gestational age, 38.1 (29.3–40.6) versus 39.3 (33.9–41.9) weeks (p = 0.036), and 1-minute and 5-minute Apgar scores, 9 (3–9) versus 9 (7–10) (p = 0.036) and 10 (6–10) versus 10 (8–10) (p = 0.012), respectively, than asymptomatic infants and needed more frequent assistance in the delivery room (22.2 vs 2.5%; p = 0.008). Only six (7.1%) neonates had anti-SARS-CoV-2-specific antibodies, despite the ongoing maternal infection.

Conclusion The incidence of VT is low as is the detection of specific anti-SARS-CoV-2 antibodies in cord blood when infection is contracted late in pregnancy. This would suggest poor protection of infants against horizontal transmission of the virus. (Author)

2024-07795

Impact of conflict and pandemic on women's health in Latin America: implementation to improve equity in the provision and access to safe obstetric anesthesia. Haylock-Loor C, Guevara J (2023), International Journal of Obstetric Anesthesia vol 55, August 2023, 103651

Latin America is one of the regions with the most significant inequalities in women's health as a result of factors such as social disparity, lack of work opportunities, unemployment, violence, and corruption. Adding a health crisis like the COVID-19 pandemic to these elements created a perfect storm that perpetuated extreme inequalities. The crisis negatively impacted Latin-American women, and economic recession in our region was one of the main consequences, resulting in women compared with men having higher rates of poverty, poorer access to and experience of healthcare, a wider gender gap, and adverse effects on well-being. This consequently made women more vulnerable. Several initiatives to allow better access and to provide safe anesthesia to pregnant patients have been taken in the region to improve obstetric patient care during the pandemic and beyond. Education has been pivotal and one of the most essential tools in bridging the gap in inequalities between men and women.

Keywords: COVID-19; Equity; Obstetric anesthesia; Women's healthcare.

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2024-07739

The impact of COVID-19 disease on maternal and neonatal outcomes among birthing women in Jordan. Al Sukhun R, Abujilban S, Al-Motlaq M (2024), Journal of Neonatal Nursing vol 30, no 6, December 2024, pp 668-672

Background

Pregnant women are considered among the vulnerable groups affected by COVID-19. In addition to the direct effect on maternal health, COVID-19 adversely affects neonatal outcomes.

Purpose

To explore the impact of COVID-19 on maternal and neonatal outcomes among birthing women in Jordan.

Method

A descriptive comparative retrospective design was used. A self-report questionnaire was used to collect data from

140 conveniently selected women admitted to a large governmental hospital in central Jordan. The participants' data files contained data about the birth outcomes.

Result
The results showed that rates of fetal distress incidence as a reason for emergency cesarean X2 (1, N = 140) = 9.46, p = 0.002, and the need to use electronic fetal heart rate monitoring X2 (1, N = 140) = 6.87, p = 0.009 were higher in mothers infected with COVID-19. The non-infected group reported higher use of analgesics during labor X2 (1, N = 140) = 5.42, p = 0.02, episiotomy occurrence X2 (1, N = 140) = 36.96, p = 0.001, incidence of any laceration during labor X2 (1, N = 140) = 38.60, p = 0.001 and gestational age F (1, 8.926) = 0.003, P < 0.05.

Conclusions
This study indicated that COVID-19 could lead to significant adverse outcomes for pregnant women. It also emphasized the need for more understanding of the implications for newborns born to women infected with COVID-19. Outcomes could serve as a baseline for future studies exploring the effect of COVID-19 on maternal and neonatal outcomes among birthing women. (Author)

2024-07533

Compounding stress: A mixed-methods study on the psychological experience of miscarriage amid the COVID-19 pandemic. Fernandez-Pineda M, Swift A, Dolbier C, et al (2024), BMC Pregnancy and Childbirth vol 24, no 426, June 2024

Background
Experiencing a miscarriage can have profound psychological implications, and the added strain of the COVID-19 pandemic may have compounded these effects. This study aimed to explore the psychological experiences, assess the levels of psychological distress (depression, anxiety, and post-traumatic stress disorder), and examine the relationships of personal significance of miscarriage and perceived stress with psychological distress of women in North Carolina who suffered a miscarriage of a desired pregnancy between March 30, 2020, and February 24, 2021, of the COVID-19 pandemic, at 14 to 31 months after the loss.

Methods
We conducted a cross-sectional mixed-methods study using a convergent parallel design. A total of 71 participants from North Carolina completed the online survey and 18 completed in-depth interviews. The survey assessed demographics, mental health and reproductive history, personal significance of miscarriage, perceived stress, anxiety, depression, and PTSD. Interview questions asked about the psychological experience of the miscarriage and how the COVID-19 pandemic affected them and their experience.

Results
Findings indicated moderate to severe levels of depression, anxiety, and PTSD, which persisted 14 to 31 months post-miscarriage. After conducting hierarchical binary logistic regressions, we found that perceived stress and prior trauma increased the odds of depression, perceived stress increased the odds of anxiety, and personal significance and prior trauma increased the odds of PTSD symptoms 14–31 months post-miscarriage. Notably, a subsequent successful childbirth emerged as a protective factor against depression, anxiety, and PTSD. Qualitative findings depicted emotions such as profound isolation, guilt, and grief. Women noted that additional pandemic-specific stressors exacerbated their distress. The categories identified via conventional content analysis fell under five broader thematic groups: mental health disorders, negative emotions/feelings, positive emotions/feelings, thoughts, and other experiences.

Conclusions
Miscarriage during the COVID-19 pandemic intensified and added complexity to the psychological distress experienced by affected women. The study underscores the need for comprehensive mental health screenings, specialized support for vulnerable groups, and the necessity of trauma-informed care. Providers are strongly encouraged to adopt a multifaceted, individualized approach to patient care that is cognizant of the unique stressors

introduced by the pandemic. (Author)
Full URL: https://doi.org/10.1186/s12884-024-06610-z

2024-07489

When pregnancy and pandemic coincide: changes in stress and anxiety over the course of pregnancy. Preis H, Somers J, Mahaffey B, et al (2024), Journal of Reproductive and Infant Psychology vol 42, no 3, 2024, pp 395-409

Background
Pregnant women experienced high levels of perceived stress and anxiety at the onset of the COVID-19 pandemic. However, the course of stress and anxiety in individual pregnant women during the pandemic is unknown.

Methods
Participants were 1,087 women ≤20 weeks pregnant in April–May 2020 (T1) at recruitment into the Stony Brook COVID-19 Pregnancy Experiences (SB-COPE) Study, with additional assessments in July–August 2020 (T2) and October 2020 (T3). Growth mixture models conditioned on covariates were used to identify patterns of change over time in pandemic-related stress (originating from feeling unprepared for birth and fearing perinatal infection), pregnancy-specific stress, and anxiety symptoms.

Results
A uniform pattern of change (i.e. one-class solution) in stress perceptions was observed over time. Participants showed the same functional form of decreases in all three types of stress perceptions over the course of their pregnancy and as the pandemic persisted. Initial level of stress did not predict change over time. Anxiety symptoms had a two-class solution in which 25% of participants had high and convex patterns of anxiety, and 75% had low levels with concave patterns.

Discussion
Stress perceptions and anxiety patterns of change over the course of pregnancy during the COVID-19 pandemic were different. Therefore, to evaluate the well-being of pregnant women during a global health crisis, it is important to assess both stress perceptions and emotional stress responses (i.e. anxiety). Screening for anxiety symptoms in early pregnancy would be valuable as symptoms may not spontaneously decrease even when stressful conditions improve. (Author)

2024-07474

Impact of the COVID-19 pandemic on excess maternal deaths in Brazil: A two-year assessment. Orellana JDY, Leventhal DGP, Flores-Quispe MDP, et al (2024), PLoS ONE vol 19, no 4, April 2024, e0298822

Background: Accurate estimates of the COVID-19 pandemic's indirect impacts are crucial, especially in low- and middle-income countries. This study aims to update estimates of excess maternal deaths in Brazil during the first two years of the COVID-19 pandemic.

Methods: This was an exploratory mixed ecological study using the counterfactual approach. The observed maternal deaths were gathered from the Mortality Information System (SIM) for the period between March 2015 and February 2022. Expected deaths from March 2020 to February 2022 were estimated using quasipoisson generalized additive models, considering quadrimester, age group, and their interaction as predictor variables. Analyses were performed in R version 4.1.2, RStudio, version 2023.03.1+446 and carried out with support from the "mgcv" and "plot_model" libraries.

Results: A total of 5,040 maternal deaths were reported, with varying excess mortality across regions and age groups, resulting in 69% excess maternal mortality throughout Brazil during the first two years of the pandemic. The Southeast region had 50% excess mortality throughout the first two years and 76% excess in the second year. The North region had 69% excess mortality, increasing in the second year, particularly among women aged 20-34. The Northeast region

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showed 80% excess mortality, with a significant increase in the second year, especially among women aged 35-49. The Central-West region had 75% excess mortality, higher in the second year and statistically significant among women aged 35-49. The South region showed 117% excess mortality, reaching 203% in the second year among women aged 20-34, but no excess mortality in the 10-19 age category.

Conclusions: Over two years, Brazil saw a significant impact on maternal excess deaths, regardless of region and pandemic year. The highest peak occurred between March and June 2021, emphasizing the importance of timely and effective epidemic responses to prevent avoidable deaths and prepare for new crises.

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2024-07348

Obstetric Racial Disparities in the Era of the ARRIVE (A Randomized Trial of Induction Versus Expectant Management) Trial and the Coronavirus Disease 2019 (COVID-19) Pandemic. Wheeler SM, Truong T, Unnithan S, et al (2024), Obstetrics & Gynecology vol 143, no 5, May 2024, pp 690-699

OBJECTIVE:
To evaluate the influence of the ARRIVE (A Randomized Trial of Induction Versus Expectant Management) trial and the coronavirus disease 2019 (COVID-19) pandemic on racial and ethnic differences in labor induction, pregnancy-associated hypertension, and cesarean delivery among non-Hispanic Black and non-Hispanic White low-risk, first-time pregnancies.

METHODS:
We conducted an interrupted time series analysis of U.S. birth certificate data from maternal non-Hispanic Black and non-Hispanic White race and ethnicity, first pregnancy, 39 or more weeks of gestation, with no documented contraindication to vaginal delivery or expectant management beyond 39 weeks. We compared the rate of labor induction (primary outcome), pregnancy-associated hypertension, and cesarean delivery during three time periods: pre-ARRIVE (January 1, 2015–July 31, 2018), post-ARRIVE (November 1, 2018–February 29, 2020), and post-COVID-19 (March 1, 2020–December 31, 2021).

RESULTS:
In the post-ARRIVE period, the rate of labor induction increased in both non-Hispanic White and non-Hispanic Black patients, with no statistically significant difference in the magnitude of increase between the two groups (rate ratio for race [RRrace] 0.98, 95% CI, 0.95–1.02, P=.289). Post-COVID-19, the rate of labor induction increased in non-Hispanic White but not non-Hispanic Black patients. The magnitude of the rate change between non-Hispanic White and non-Hispanic Black patients was significant (RRrace 0.95, 95% CI, 0.92–0.99, P=.009). Non-Hispanic Black pregnant people were more likely to have pregnancy-associated hypertension and more often delivered by cesarean at all time periods.

CONCLUSION:
Changes in obstetric practice after both the ARRIVE trial and the COVID-19 pandemic were not associated with changes in Black–White racial differences in labor induction, cesarean delivery, and pregnancy-associated hypertension. (Author) [Erratum: Obstetrics & Gynecology, vol 145, no 2, February 2025, pp e83-e85. https://doi.org/10.1097/AOG.0000000000005811]

2024-07287

Indirect impact of SARS-CoV-2 pandemic on incidence of maternal primary cytomegalovirus and Toxoplasma gondii

infection in pregnancy. Vasarri MV, Fernicola F, Arienti F, et al (2024), International Journal of Gynecology & Obstetrics vol 166, no 3, September 2024, pp 1218-1224

Objective

Public health interventions promoted during the SARS-CoV-2 pandemic to control viral spread have impacted the occurrence of other communicable disease. Yet no studies have focused on perinatal infections with the potential for neonatal sequelae, including cytomegalovirus (CMV) and Toxoplasma gondii (TG). Here we investigate whether incidence rates of maternal primary CMV and TG infection in pregnancy were affected by the implementation of pandemic-related public health measures.

Methods

A retrospective study including all pregnant women with confirmed primary CMV or TG infection in pregnancy, managed between 2018 and 2021 at two university centers. The incidence rate was calculated as the number of CMV and TG infections per 100 consultations with a 95% confidence interval (CI). Data were compared between pre-pandemic (2018–2019) and pandemic (2020 and 2021) years. The Newcombe Wilson with Continuity Correction method was employed to compare incidence rates.

Results

The study population included 215 maternal primary CMV and 192 TG infections. Rate of maternal primary CMV infection decreased in 2021 compared with 2018–2019 (4.49% vs 6.40%, attributable risk [AR] 1.92, P = 0.019). By contrast, the rate of TG infection substantially increased in 2020 (6.95% vs 4.61%, AR 2.34, P = 0.006). Close contact with cats was more common among patients with TG infection in 2020 and 2021 than among pre-pandemic TG-infected women (26.3% and 24.4% vs 13.3%, P = 0.013).

Conclusion

Pandemic-related public health interventions and associated behavioral and lifestyle changes exerted a divergent effect on the incidence of primary CMV and TG infection in pregnancy, likely due to modulation of exposure to risk factors for these infections. (Author)

2024-07268

Long-term impact of COVID-19 pandemic on ART-mediated births in Lombardy, Italy. Esposito G, Somigliana E, Viganò P, et al (2024), International Journal of Gynecology & Obstetrics vol 167, no 1, October 2024, pp 466-468

ART-mediated births declined between December 2020 and February 2021, followed by a rapid recovery to 2019 levels. In 2022, ART-mediated births exceeded pre-pandemic rates. (Author)

2024-07164

Use of Respiratory and Contact Precautions to Decrease the Spread of SARS-CoV-2 Infection Was Not Associated with a Decrease in Endometritis–Intra-Amniotic Infection. Roig J, DeBolt CA, Cabrera M, et al (2024), American Journal of Perinatology vol 41, no 15, November 2024, pp 2082-2090

Objective To decrease the spread of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) on the Mount Sinai Hospital's obstetric service, additional contact and respiratory precautions for patients and staff were implemented. Patients were allowed only one support person, SARS-CoV-2 tested on admission, and required to mask during hospitalization. Staff were required to wear masks and eye shields, gloves for all patient care, and gowns for care with SARS-CoV-2-infected patients. This study determined if the risk of endometritis/intra-amniotic infection (IAI) changed under the new pandemic precautions.

Study Design A single-center, historical cohort study via electronic medical record review compared singleton deliveries among patients who labored during the “pandemic period” (from March 1 through May 31, 2020) with those who labored during the “prepandemic period” (March 1 through May 31, 2019) to determine if the risk of endometritis/IAI differed. The analysis was done using logistic regression with inverse probability of treatment

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weighting (IPTW) to adjust for possible differences in obstetric practice and patient population between the two periods.

Results Four percent (53/1,318) of patients in the pandemic period and 5.1% (82/1,596) of patients in the prepandemic period were diagnosed with endometritis/IAI (p = 0.15). Compared with patients who delivered in the prepandemic period, those who delivered during the pandemic period had a higher body mass index at delivery (median: 28.36 [interquartile range, IQR: 25.70, 32.07] vs. 28.00 [IQR: 25.23, 31.50], p = 0.01) and experienced fewer digital exams (median: 4 [range: 1, 10] vs. 4 (range: 1, 19], p = 0.004), a practice not included in the SARS-CoV-2 prevention strategy. In multivariable logistic regression with IPTW adjusting for risk factors for endometritis/IAI, period of delivery was not associated with endometritis/IAI (odds ratio = 0.76, 95% confidence interval [0.52, 1.11], p = 0.15).

Conclusion The use of respiratory and contact precautions to limit the spread of SARS-CoV-2 was not associated with risk of endometritis/IAI. (Author)

2024-07163

Increased Rates of Hypertensive Disorders of Pregnancy during the COVID-19 Pandemic. Sinnott CM, Freret TS, Clapp MA, et al (2024), American Journal of Perinatology vol 41, no 11, August 2024, pp 1463-1468

Objective Hypertensive disorders of pregnancy (HDP) are common complications associated with severe maternal and neonatal morbidity. One goal of prenatal care, especially at term, is to screen for HDP. As treatment of HDP centers on delivery when appropriate, timely diagnosis is crucial. We postulated that reduced in-person visits during the coronavirus disease 2019 (COVID-19) pandemic may have resulted in delayed diagnosis of HDP with concomitant higher rates of maternal morbidity. We sought to investigate the prevalence of HDP during the COVID-19 pandemic, as well as median gestational age at time of delivery as compared with the prepandemic median.

Study Design This was a retrospective cohort analysis comparing singleton deliveries at four large-volume hospitals during the COVID-19 pandemic (April–July 2020 during a statewide “stay-at-home” order) to those in a pre-COVID era (April–July 2019). Deliveries complicated by HDP were identified by International Classification of Disease, Tenth Revision codes. Rates of HDP and markers of severe disease were the primary outcomes compared between the groups; multivariate regression was used to calculate the odds ratio of severe disease among women with any diagnosis of HDP.

Results The cohort included 9,974 deliveries: 5,011 in 2020 and 4,963 in 2019. Patient characteristics (age, body mass index, race, ethnicity, and insurance type) did not differ significantly between the groups. There was an increase in HDP during the COVID era (9.0 vs. 6.9%; p < 0.01), which was significant even when controlling for patient parity (odds ratio 1.41, 95% CI 1.20–1.66). Among women with HDP, gestational age at delivery did not differ between the cohorts, nor did the proportion of patients with severe disease.

Conclusion We found a statistically significant increase in the rate of HDP during the COVID-19 pandemic. However, there was no change in the proportion of severe disease, suggesting that this increase did not significantly impact clinical morbidity. (Author)

2024-07162

Association between SARS-CoV-2 Infection and Adverse Perinatal Outcomes by Race/Ethnicity in a Large Integrated Health Care System. Mensah NA, Fassett MJ, Lurvey LD, et al (2024), American Journal of Perinatology vol 41, no 15, November 2024, pp 2109-2118

Objective Recent studies have reported associations between severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2) infection during pregnancy and adverse perinatal outcomes but the extent to which these associations vary by race/ethnicity remains uncertain. Therefore, we examined how the association between prenatal SARS-CoV-2

infection and adverse perinatal outcomes may be modified by race/ethnicity.

Study Design A retrospective cohort study was performed using data on 67,986 pregnant women extracted from the Kaiser Permanente Southern California electronic health records between April 6, 2020, and December 31, 2021. Upon admission to labor and delivery, all women were routinely tested for coronavirus disease 2019 (COVID-19) using real-time reverse-transcriptase polymerase chain reaction test. Adjusted odds ratios (aORs) were used to estimate associations.

Results During the study period, COVID-19 was diagnosed in 4,960 (7%) of singleton pregnancies, with the highest rates observed among Hispanics (9.4%) and non-Hispanic Blacks (6.2%). Compared with non-Hispanic Whites, Hispanics (aOR: 1.12, 95% CI: 1.03, 1.21) with SARS-CoV-2 infection had the highest odds of a pregnancy associated with nonreassuring fetal heart rate tracing. Neonates of all races/ethnicities, except for non-Hispanic Blacks, showed significantly increased odds of SARS-CoV-2 infection, with the highest risk observed among Asians/Pacific Islanders (aOR: 10.88, 95% CI: 1.33, 89.04). Non-Hispanic White mothers who tested positive were admitted to intensive care unit (ICU) at a higher rate at delivery and within 7 days of delivery (aOR: 34.77, 95% CI: 11.3, 107.04; aOR: 26.48, 95% CI: 9.55, 73.46, respectively). Hispanics were also at a significantly higher odds of admission to ICU (aOR: 4.62, 95% CI: 2.69, 7.94; aOR: 4.42, 95% CI: 2.58, 7.56, respectively). Non-Hispanic Black, Hispanic, and Asian/Pacific Islander mothers who tested positive for SARS-CoV-2 prenatally, were at increased risk for preeclampsia/eclampsia, and preterm birth as compared to non-Hispanic White mothers.

Conclusion The findings highlight racial/ethnic disparities in the association between SARS-CoV-2 infection and adverse perinatal outcomes. The risk of neonatal SARS-CoV-2 infection was highest for Asian/Pacific Islanders. We also observed a remarkably high risk of ICU admission for non-Hispanic White mothers infected with SARS-CoV-2. (Author)

2024-07151

Prediction of COVID-19 Severity at Delivery after Asymptomatic or Mild COVID-19 during Pregnancy. Sandoval CJ, Metz TD, Grobman WA, et al (2024), American Journal of Perinatology vol 41, no 16, December 2024, pp 2290-2297

Objective This study aimed to develop a prediction model that estimates the probability that a pregnant person who has had asymptomatic or mild coronavirus disease 2019 (COVID-19) prior to delivery admission will progress in severity to moderate, severe, or critical COVID-19.

Study Design This was a secondary analysis of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)-positive patients who delivered from March through December 2020 at hospitals across the United States. Those eligible for this analysis presented for delivery with a current or previous asymptomatic or mild SARS-CoV-2 infection. The primary outcome was moderate, severe, or critical COVID-19 during the delivery admission through 42 days postpartum. The prediction model was developed and internally validated using stratified cross-validation with stepwise backward elimination, incorporating only variables that were known on the day of hospital admission.

Results Of the 2,818 patients included, 26 (0.9%; 95% confidence interval [CI], 0.6–1.3%) developed moderate–severe–critical COVID-19 during the study period. Variables in the prediction model were gestational age at delivery admission (adjusted odds ratio [aOR], 1.15; 95% CI, 1.08–1.22 per 1-week decrease), a hypertensive disorder in a prior pregnancy (aOR 3.05; 95% CI, 1.25–7.46), and systolic blood pressure at admission (aOR, 1.04; 95% CI, 1.02–1.05 per mm Hg increase). This model yielded an area under the receiver operating characteristic curve of 0.82 (95% CI, 0.72–0.91).

Conclusion Among individuals presenting for delivery who had asymptomatic–mild COVID-19, gestational age at delivery admission, a hypertensive disorder in a prior pregnancy, and systolic blood pressure at admission were predictive of delivering with moderate, severe, or critical COVID-19. This prediction model may be a useful tool to optimize resources for SARS-CoV-2-infected pregnant individuals admitted for delivery. (Author)

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2024-06917

COVID-19 infection and maternal morbidity in critical care units in Scotland: a national cohort study. McPeake J, Blayney MC, Stewart NI, et al (2023), International Journal of Obstetric Anesthesia vol 53, February 2023, 103613

Background: Previous research has shown that, in comparison with non-pregnant women of reproductive age, pregnant women with COVID-19 are more likely to be admitted to critical care, receive invasive ventilation, and die. At present there are limited data in relation to outcomes and healthcare utilisation following hospital discharge of pregnant and recently pregnant women admitted to critical care.

Methods: A national cohort study of pregnant and recently pregnant women who were admitted to critical care in Scotland with confirmed or suspected COVID-19. We examined hospital outcomes as well as hospital re-admission rates.

Results: Between March 2020 and March 2022, 75 pregnant or recently pregnant women with laboratory-confirmed COVID-19 were admitted to 24 Intensive Care Units across Scotland. Almost two thirds (n=49, 65%) were from the most deprived socio-economic areas. Complete 90-day acute hospital re-admission data were available for 74 (99%) patients. Nine (12%) women required an emergency non-obstetric hospital re-admission within 90 days. Less than 5% of the cohort had received any form of vaccination.

Conclusions: This national cohort study has demonstrated that pregnant or recently pregnant women admitted to critical care with COVID-19 were more likely to reside in areas of socio-economic deprivation, and fewer than 5% of the cohort had received any form of vaccination. More targeted public health campaigning across the socio-economic gradient is urgently required.

Keywords: COVID-19; Critical care, maternal; Re-admission; Vaccination.

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Full URL: https://doi.org/10.1016/j.ijoa.2022.103613

2024-06912

Challenges and pitfalls of extracorporeal membrane oxygenation in critically-ill pregnant and peripartum women with COVID-19: a retrospective case series. Piwowarczyk P, Porzak M, Szczukocka M, et al (2023), International Journal of Obstetric Anesthesia vol 53, February 2023, 103625

Background: Available data identify pregnancy as a strong determinant of a severe course of COVID-19 with increased mortality. Extracorporeal membrane oxygenation (ECMO) remains the last resort treatment in the critical course of COVID-19 yet may increase the risk of excessive bleeding, especially in the immediate post-cesarean section period. One in five patients receiving ECMO during the COVID-19 pandemic were women who were pregnant or postpartum. While the risk of critical respiratory failure in the peripartum period is high, in an early survey only 52% of pregnant patients intended to receive the COVID-19 vaccine.

Methods: Our study aimed to evaluate clinical characteristics and treatment modalities in a series of five pregnant and peripartum women supported with ECMO and anticoagulated with anti-Xa-guided nadroparin therapy in our center. We reviewed the full treatment courses; inflammatory, hemodynamic, and coagulation variables; and maternal and neonatal outcomes. We identified adverse events during the therapy.

Results: All five patients developed acute respiratory distress syndrome due to COVID-19 in the third trimester of pregnancy. Termination of pregnancy occurred between 28 and 36 gestational weeks. While four of five newborns survived to hospital discharge, only two of the five mothers survived to leave hospital.

Conclusions: ECMO is feasible in the third trimester but not devoid of complications. The severity of respiratory failure during COVID-19 and extracorporeal support may not adversely impact neonatal outcomes.

Keywords: Acute respiratory distress syndrome; Anticoagulation; COVID-19; Extracorporeal membrane oxygenation; Pregnancy.

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Full URL: https://doi.org/10.1016/j.ijoa.2023.103625

2024-06768

A qualitative study exploring healthcare workers' lived experiences of the impacts of COVID-19 policies and guidelines on maternal and reproductive healthcare services in the United Kingdom. Chaloner J, Qureshi I, Gogoi M, et al (2023), European Journal of Midwifery vol 7, November 2023, p 30

Introduction:
During the COVID-19 pandemic, pregnant women were regarded as vulnerable to poor health outcomes if infected with the SARS-CoV-2 (COVID-19) virus. To protect the United Kingdom's (UK) National Health Service (NHS) and pregnant patients, strict infection control policies and regulations were implemented. This study aimed to understand the impact of the COVID-19 policies and guidelines on maternal and reproductive health services during the pandemic from the experiences of healthcare workers (HCWs) caring for these patients.

Methods:
This qualitative study involved HCWs from the United Kingdom Research study into Ethnicity and COVID-19 outcomes in Healthcare workers (UK-REACH) project. Semi-structured interviews and focus groups were conducted online or by telephone with 44 diverse HCWs. Transcripts were thematically analyzed following Braun and Clarke's principles of qualitative analysis.

Results:
Three key themes were identified during analysis. First, infection control policies impacted appointment availability, resulting in many cancellations and delays to treatment. Telemedicine was also used extensively to reduce risks from face-to-face consultations, disadvantaging patients from minoritized ethnicities. Secondly, staff shortages and redeployments reduced availability of consultations, appointments, and sonography scans. Finally, staff and patients reported challenges accessing timely, reliable and accurate information and guidance.

Conclusions:
COVID-19 demonstrated how a global health crisis can impact maternal and reproductive health services, leading to reduced service quality and surgical delays due to staff redeployment policies. Our findings underscore the implications of policy and future health crises preparedness. This includes tailored infection control policies, addressing elective surgery backlogs early and improved dissemination of relevant vaccine information. (Author)
Full URL: https://doi.org/10.18332/ejm/171802

2024-06366

Perinatal outcomes among pregnant patients with peripartum coronavirus disease 2019 infection. Saban A, Haleluya NL, Geva Y, et al (2024), Archives of Gynecology and Obstetrics vol 310, no 2, August 2024, pp 793 - 800

Purpose
Evaluate maternal and neonatal outcomes in peripartum coronavirus disease 2019 (COVID-19) positive women.

Methods
A retrospective cohort study was conducted, comparing outcomes between women with and without peripartum COVID-19. All singleton deliveries from June 2020 to January 2022 were included. Univariate analysis was followed by

multivariate analysis.

Results
Of 26,827 singleton deliveries, 563 women had peripartum COVID-19, associated with preterm deliveries both near-term and remote from term [adjusted odds ratio (aOR) 1.6 and 2.0, respectively, p = 0.007 and 0.003]. Women with peripartum COVID-19 had a significantly higher rate of disseminated intravascular coagulation (DIC) (aOR 23.0, p < 0.001). Conversely, peripartum COVID-19 peripartum COVID-19 was negatively associated with premature rupture of membranes and prolonged maternal length of stay (aOR 0.7 and 0.5, respectively, p = 0.006 and <0.001).

In cesarean delivery (CDs), patients with COVID-19 had higher rate of urgent CDs (75.5 vs. 56.1%, p < 0.001), higher rate of regional anesthesia (74.5 vs. 64.9%, p = 0.049), and longer anesthesia duration (86.1 vs. 53.4 min, p < 0.001). CD rate due to non-reassuring fetal heart rate (NRFHR) was significantly higher in women with COVID-19 (29.6 vs. 17.4%, p = 0.002). Conversely, CDs rate due to history of previous single CD was significantly higher in patients without COVID-19 diagnosis (13.6 vs. 4.1%, p = 0.006).

Concerning neonatal outcomes, an association has been observed between COVID-19 and low one-minute APGAR score <5, as well as neonatal COVID-19 infection (aOR 61.8 and 1.7 respectively, p < 0.001 and p = 0.037).

Conclusions
Peripartum COVID-19 is associated with preterm deliveries, urgent CDs and DIC, potentially aligning with the infection's pathophysiology and coagulation alterations. (Author)
Full URL: https://doi.org/10.1007/s00404-024-07536-9

2024-06352

Obesity-related maternal complications during the COVID-19 pandemic. Sgayer I, Fishman TY, Wolf MF, et al (2024), Obstetric Medicine 11 February 2024, online

Objectives
To compare gestational weight gain (GWG) during pregnancy and obesity-related maternal morbidity between three months of the first year of the COVID-19 pandemic and three months of the previous year.
Methods
A retrospective comparative study was conducted in a tertiary university-affiliated hospital. GWG, obesity rates and pregnancy complications were compared between the time periods.
Results
Among women with class I obesity, GWG was higher during the pandemic (n = 1071) than the previous year (n = 1194): 11.16 vs. 8.69 kg, p = 0.04. Women during the pandemic compared to the previous year were less likely to be diagnosed with gestational diabetes (odds ratio [OR] = 0.66, 95% confidence interval [CI] 0.47–0.91, p = 0.01) or hypertensive disorders of pregnancy (OR = 0.63, 95% CI 0.35–1.0, p = 0.05) after adjustment for parity, mode of conception and advanced maternal age.
Conclusions
Gestational weight gain increased during the pandemic, yet rates of obesity-related complications were notably fewer. This is likely attributed to decreased detection consequent to limited antenatal care. (Author)

2024-06325

COVID-19 complicating pregnancy: A retrospective study of nine intensive care unit patients. Sivalingam D, Kumar AA, Venkatesha Gupta KV, et al (2024), Obstetric Medicine vol 17, no 1, March 2024, pp 28-35

Background
With the emergence of the coronavirus 2019 (COVID-19) pandemic, it was essential to determine the impact of this disease on pregnant women and neonatal outcomes. In this study, we present a series of nine cases of pregnant women with COVID-19 disease requiring intensive care unit (ICU) admission.

Methods
We retrospectively collected clinical data of pregnant women with COVID-19 disease admitted to ICU between September 2020 and September 2021.
Results
Most common presenting symptom was cough. Two patients had no respiratory symptoms at presentation. Five of the nine patients required invasive mechanical ventilation. Seven patients required caesarean section, four of whom delivered preterm. There were no maternal or neonatal deaths.
Conclusions
Although maternal and neonatal outcomes reported in our study are encouraging, it is imperative to emphasize the importance of an individualized, multidisciplinary approach, and good healthcare infrastructure for optimal management of this group of patients. (Author)

2024-06246

The impact of continuous and intermittent supportive counseling on self-efficacy and continuation of breastfeeding in lactating women affected by COVID-19: a quasi-experimental trial. Karimi M, Maleki A, Rastegari L (2024), BMC Pregnancy and Childbirth vol 24, no 376, May 2024

Background
Promoting exclusive breastfeeding can have a great effect in reducing the complications and mortality rate of mother and child.

Objective
The study aimed to compare the effects of continuous and intermittent supportive counselling on the self-efficacy and continuity of breastfeeding among Lactating mothers with COVID-19.

Methods
The study was a semi-experimental research method and was conducted on 73 mothers with COVID-19 who were hospitalized in Ayatollah Mousavi Hospital in Zanjan, Iran from May 2021 to April 2022. In the continuous counselling group, counselling was provided daily for 14 days, while in the intermittent counselling group, counselling was provided once a week for four weeks. Breastfeeding continuity was assessed based on the World Health Organization's classification, and breastfeeding self-efficacy was measured using Dennis' standard breastfeeding self-efficacy questionnaire (BSE) up to four months after delivery. The data were analyzed using chi-square tests, independent t-tests, paired t-tests, analysis of variance with repeated measures, and survival analysis (Kaplan-Meier) with a 95% confidence level.

Results
The survival analysis revealed that the cessation of exclusive breastfeeding occurred in 17 cases within the continuous counselling group and in 22 cases within the intermittent counselling group. The rates of continuation for exclusive breastfeeding were 52.8% and 40.5% in the continuous and intermittent counselling group respectively. However, no statistically significant differences were observed in the continuation of breastfeeding and the trend of changes in the mean scores of breastfeeding self-efficacies between the continuous and intermittent counselling groups. Furthermore, comparing the change in breastfeeding self-efficacy scores between the one-month and four-month follow-ups within the continuous counselling group, a statistically significant increase was observed.

Conclusion
The results indicated no difference in the effectiveness of continuous and intermittent counseling methods in improving breastfeeding continuity in women with COVID-19. Further research is needed to explore the long-term effects of different counseling approaches on breastfeeding outcomes during crises.

Trial registration
The study was registered on the Iranian Registry of Clinical Trials website on 29/06/2021 with the registration code

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IRCT20150731023423N19. It can be accessed via this link: https://irct.behdasht.gov.ir/user/trial/55391/view. (Author)
Full URL: https://doi.org/10.1186/s12884-024-06572-2

2024-06170

Prevalence and duration of SARS-CoV-2 fecal shedding in breastfeeding dyads following maternal COVID-19 diagnosis. Pace RM, King-Nakaoka EA, Morse AG, et al (2024), Frontiers in Immunology 21 March 2024, online

Background: There is a paucity of data on the presence of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in feces of lactating women with coronavirus disease 2019 (COVID-19) and their breastfed infants as well as associations between fecal shedding and symptomatology.

Objective: We examined whether and to what extent SARS-CoV-2 is detectable in the feces of lactating women and their breastfed infants following maternal COVID-19 diagnosis.

Methods: This was a longitudinal study carried out from April 2020 to December 2021 involving 57 breastfeeding maternal-infant dyads: 33 dyads were enrolled within 7 d of maternal COVID-19 diagnosis, and 24 healthy dyads served as controls. Maternal/infant fecal samples were collected by participants, and surveys were administered via telephone over an 8-wk period. Feces were analyzed for SARS-CoV-2 RNA.

Results: Signs/symptoms related to ears, eyes, nose, and throat (EENT); general fatigue/malaise; and cardiopulmonary signs/symptoms were commonly reported among mothers with COVID-19. In infants of mothers with COVID-19, EENT, immunologic, and cardiopulmonary signs/symptoms were most common, but prevalence did not differ from that of infants of control mothers. SARS-CoV-2 RNA was detected in feces of 7 (25%) women with COVID-19 and 10 (30%) of their infants. Duration of fecal shedding ranged from 1-4 wk for both mothers and infants. SARS-CoV-2 RNA was sparsely detected in feces of healthy dyads, with only one mother's and two infants' fecal samples testing positive. There was no relationship between frequencies of maternal and infant SARS-CoV-2 fecal shedding (P=0.36), although presence of maternal or infant fever was related to increased likelihood (7-9 times greater, P≤0.04) of fecal shedding in infants of mothers with COVID-19. (Author)
Full URL: https://doi.org/10.3389/fimmu.2024.1329092

2024-06101

Association between sleep quality with maternal and neonatal outcomes during the covid-19 pandemic. Akbari M, EsmaeilzadehSaeieh S, Farid M, et al (2024), BMC Pregnancy and Childbirth vol 24, no 294, April 2024

Aim

Sleep disorders during pregnancy can impact maternal and neonatal outcomes. The objective of this study is to examine the relationship between sleep quality and maternal and neonatal outcomes during the COVID-19 pandemic.

Method

This prospective cohort study was conducted at the Educational-Therapeutic Center of Shohadaye Yaftabad Referral Hospital in Tehran, Iran, from December 2020 to September 2022. A total of 198 eligible participants were randomly assigned to either the sleep disorders group or the no sleep disorders group. Data were collected through demographic questionnaires, the Corona Disease Anxiety Scale (CDAS) questionnaire, the Pittsburgh Sleep Quality Index (PSQI), and the checklist for maternal and neonatal outcomes.

Results

At baseline, the sleep disorders and no sleep disorders groups were similar in terms of age, body mass index (before pregnancy), education level, employment status, gravida, parity, abortion, and history of COVID-19. Within the sleep disorders group, there was a statistically significant, direct linear correlation between sleep disorders and FBS 34–36 weeks ($r = 0.33$, $P < 0.001$) as well as Corona Disease Anxiety (CDA) ($r = 0.35$, $P < 0.001$). The linear regression results indicated that for every unit increase in sleep disorders, the risk of FBS 34–36 weeks increased by 1.09 times ($\beta = 1.09$,

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P < 0.001). Additionally, sleep disorders increased the risk of CDA by 1.36 times (β = 1.36, P < 0.001). The results showed no statistically significant differences in terms of birth weight, type of delivery (vaginal or cesarean section), gestational age (preterm or full term), length of labor stages (first and second stage), Apgar score at minutes 1 and 5, and NICU admission between the two groups.

Conclusion

Based on the results, a certain degree of correlation exists between sleep quality and FBS at 34–36 weeks and CDA. These findings underscore the need for future public health guidelines to formulate detailed strategies to improve sleep quality during the COVID-19 pandemic. (Author)

Full URL: https://doi.org/10.1186/s12884-024-06479-y

2024-06057

Placental inflammation in a fetal demise of a SARS-CoV-2-asymptomatic, COVID-19-unvaccinated pregnant woman: a case-report. Abrego-Navarro M, Villalobos R, Sanchez J, et al (2024), BMC Pregnancy and Childbirth vol 24, no 319, April 2024

Background

Intrauterine fetal demise is a recognized complication of coronavirus disease 2019 in pregnant women and is associated with histopathological placental lesions. The pathological mechanism and virus-induced immune response in the placenta are not fully understood. A detailed description of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)-induced inflammation in the placenta during fetal demise is crucial for improved clinical management.

Case presentation

We report the case of a 27-week gestation SARS-CoV-2-asymptomatic unvaccinated pregnant woman without comorbidities or other risk factors for negative pregnancy outcomes with a diagnosis of intrauterine fetal demise. Histopathological findings corresponded to patterns of subacute inflammation throughout the anatomic compartments of the placenta, showing severe chorioamnionitis, chronic villitis and deciduitis, accompanied by maternal and fetal vascular malperfusion. Our immunohistochemistry results revealed infiltration of CD68+ macrophages, CD56+ Natural Killer cells and scarce CD8+ T cytotoxic lymphocytes at the site of placental inflammation, with the SARS-CoV-2 nucleocapsid located in stromal cells of the chorion and chorionic villi, and in decidual cells.

Conclusion

This case describes novel histopathological lesions of inflammation with infiltration of plasma cells, neutrophils, macrophages, and natural killer cells associated with malperfusion in the placenta of a SARS-CoV-2-infected asymptomatic woman with intrauterine fetal demise. A better understanding of the inflammatory effects exerted by SARS-CoV-2 in the placenta will enable strategies for better clinical management of pregnant women unvaccinated for SARS-CoV-2 to avoid fatal fetal outcomes during future transmission waves. (Author)

Full URL: https://doi.org/10.1186/s12884-024-06530-y

2024-06000

The COVID-19 Pandemic Period, SARS-CoV-2 Infection, and Perinatal Health. Jung S, Liu EF, Goin DE, et al (2024), JAMA Network Open vol 7, no 5, May 2024, e2410696

This cohort study investigates the associations of SARS-CoV-2 infection and the COVID-19 pandemic period with perinatal health outcomes in California, analyzing linked birth and hospital discharge records from 2019 to 2020. We compared birth parents with SARS-CoV-2 infection, without infection in 2020, and from the prepandemic period in 2019, focusing on preterm birth (PTB), hypertensive disorders of pregnancy (HDP), gestational diabetes (GD), and severe maternal morbidity (SMM). Adjusted results indicated higher risks of PTB, HDP, and SMM with SARS-CoV-2 infection, while the pandemic period was associated with decreased PTB but increased HDP and GD. These findings suggest distinct impacts of individual infection and broader pandemic conditions on perinatal health. (AS)

Full URL: https://doi.org/10.1001/jamanetworkopen.2024.10696

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2024-05939

Prevalence of SARS-CoV-2 in newborns born to SARS-CoV-2-positive mothers at 2 weeks of life. Jan S, Katz R, Fagan D, et al (2024), Frontiers in Pediatrics 25 April 2024, online

Introduction: Limited evidence exists on management recommendations for neonates born to SARS-CoV-2-positive mothers. This study looked at transmission risk of neonates presenting for primary care in a large regional health system within New York during the early months of the COVID-19 pandemic.

Methods: This was a prospective, observational study of newborns born to SARS-CoV-2-positive mothers presenting at any of the 19 Northwell Health-Cohen Children's Medical Center primary care practices who underwent another oropharyngeal/nasopharyngeal swab for detection of SARS-CoV-2 by day of life (DOL) 14.

Results: Among 293 newborns born to SARS-CoV-2-positive mothers who were negative at birth, 222 were retested at DOL 14, corresponding to times with different predominant strains. Of these, seven tested positive but had no symptoms.

Conclusion: The overall low transmission rates and absence of symptomatic infection support the safety of direct breastfeeding after hospital discharge with appropriate hand and breast hygiene. (Author)

Full URL: https://doi.org/10.3389/fped.2024.1381104

2024-05762

Psychological impact and associated factors of the COVID-19 pandemic among pregnant women in Fafan Zone health institutions, Somali Region, Eastern Ethiopia, 2021. Jibril MK, Yimam AA, Abdu NR, et al (2024), BMC Women's Health vol 24, no 270, 30 April 2024

Background

Despite pregnant women's vulnerability to respiratory illnesses and pregnancy complications during the COVID-19 pandemic, research on its psychological impact in the study area, is limited.

Objective

This study aims to fill this gap by examining the prevalence and factors linked to the psychological impact among pregnant women in the Fafan zone, Somali region of Ethiopia.

Methods

A cross-sectional study conducted from April 1st to April 30th, 2021, randomly selected health facilities for inclusion. The Impact of Event Scale-Revised (IES-R) assessed psychological impact, and data were analyzed using SPSS V 22. Variables with a p-value ≤ 0.25 in bivariate analysis were considered for multivariate analysis via multiple logistic regressions with the backward elimination method.

Results

The study involved 294 pregnant women, constituting 73% of the respondents. The prevalence of psychological impact attributed to the COVID-19 pandemic was 27.2%. Factors such as being in the first trimester of pregnancy (AOR: 5.32), travel history to infected areas (AOR: 3.71), obtaining COVID-19 information from television (AOR: 4.81), and using social media for 1 to 2 hours daily for updates (AOR: 1.35) were significantly associated with this impact.

Conclusion

While the psychological impact among pregnant women in this study was relatively lower compared to other research, factors such as gestational age, TV media exposure, travel history, and social media usage for COVID-19 updates were strongly linked to this impact, highlighting the necessity for psychological support services for pregnant women during challenging times. (Author)

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2024-05646

A longitudinal study of how women's prenatal and postnatal concerns related to the COVID-19 pandemic predicts their infants' social–emotional development. Wiley KS, Fox MM, Gildner TE, et al (2023), Child Development vol 94, no 5, September/October 2023, pp 1356-1367

Infant social–emotional development may be impacted by the COVID-19 pandemic. This study investigated associations between maternal pre- and postnatal pandemic-related concerns and social–emotional developmental risk. Data, collected in 2020–2021, came from 220 mothers (87% white, 6% Hispanic, 1% Black, 3% Asian, 1% American Indian, Mage = 32.46 years), and infants (53.18% male, Mage = 12.98 months) in the United States. Maternal postnatal pandemic-related concerns were associated with total risk scores (B = 6.09, p-value <.001) and offspring risk of scoring positive for problems related to inflexibility (B = 4.07, p-value = .006). The total score association was moderated by self-reported social support. Infants may be detrimentally impacted by the pandemic via maternal pandemic-related concerns. Maternal social support may buffer infants. (Author)

2024-05133

Chronic villitis as a distinctive feature of placental injury in maternal SARS-CoV-2 infection. Gabby LC, Jones CK, McIntyre BB, et al (2025), American Journal of Obstetrics & Gynecology (AJOG) vol 232, no 1, January 2025, pp 123.e1-123.e12

Background

SARS-CoV-2 infection during pregnancy is associated with an increased risk for stillbirth, preeclampsia, and preterm birth. However, this does not seem to be caused by intrauterine fetal infection because vertical transmission is rarely reported. There is a paucity of data regarding the associated placental SARS-CoV-2 histopathology and their relationship with the timing and severity of infection.

Objective

This study aimed to determine if maternal SARS-CoV-2 infection was associated with specific patterns of placental injury and if these findings differed by gestational age at time of infection or disease severity.

Study Design

A retrospective cohort study was performed at the University of California San Diego between March 2020 and February 2021. Placentas from pregnancies with a positive SARS-CoV-2 test were matched with 2 sets of controls; 1 set was time-matched by delivery date and sent to pathology for routine clinical indications, and the other was chosen from a cohort of placentas previously collected for research purposes without clinical indications for pathologic examination before the SARS-CoV-2 outbreak. Placental pathologic lesions were defined based on standard criteria and included maternal and fetal vascular malperfusion and acute and chronic inflammatory lesions. A bivariate analysis was performed using the independent Student t test and Pearson chi-square test. A logistic regression was used to control for relevant covariates. Regions of SARS-CoV-2–associated villitis were further investigated using protein-based digital spatial profiling assays on the GeoMx platform, validated by immunohistochemistry, and compared with cases of infectious villitis and villitis of unknown etiology. Differential expression analysis was performed to identify protein expression differences between these groups of villitis.

Results

We included 272 SARS-CoV-2 positive cases, 272 time-matched controls, and 272 historic controls. The mean age of SARS-CoV-2 affected subjects was 30.1±5.5 years and the majority were Hispanic (53.7%) and parous (65.7%). SARS-CoV-2 placentas demonstrated a higher frequency of the 4 major patterns of placental injury (all P<.001) than the historic controls. SARS-CoV-2 placentas also showed a higher frequency of chronic villitis and severe chronic villitis (P=.03 for both) than the time-matched controls, which remained significant after controlling for gestational age at delivery (adjusted odds ratio, 1.52; 95% confidence interval, 1.01–2.28; adjusted odds ratio, 2.12; 95% confidence interval, 1.16–3.88, respectively). Digital spatial profiling revealed that programmed death-ligand 1 was increased in villitis-positive regions of the SARS-CoV-2 (logFC, 0.47; adjusted P value =.002) and villitis of unknown etiology (logFC, 0.58; adjusted P value =.003) cases, but it was conversely decreased in villitis-positive regions of the infectious villitis group (log FC, −1.40; adjusted P value <.001).

Conclusion

Chronic villitis seems to be the most specific histopathologic finding associated with SARS-CoV-2 maternal infection.

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Chronic villitis involves damage to the vasculosyncytial membrane of the chorionic villi, which are involved in gas and nutrient exchange, suggesting potential mechanisms of placental (and perhaps neonatal) injury, even in the absence of vertical transmission. Surprisingly, changes in protein expression in SARS-CoV-2–associated villitis seem to be more similar to villitis of unknown etiology than to infectious villitis. (Author)

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2024-04941

The effect of the COVID-19 pandemic on substance use patterns and physiological dysregulation in pregnant and postpartum women. Ruyak S, Roberts MH, Chambers S, et al (2023), Alcoholism: Clinical and Experimental Research vol 47, no 6, June 2023, pp 1088-1099

Background

The SARS-CoV-2/COVID-19 pandemic has been associated with increased stress levels and higher alcohol use, including in pregnant and postpartum women. In the general population, alcohol use is associated with dysregulation in the autonomic nervous system (ANS), which is indexed by heart rate variability (HRV). The objectives of this study were to: (1) characterize changes in substance use during the SARS-CoV-2/COVID-19 pandemic via a baseline self-report survey followed by mobile ecological momentary assessment (mEMA) of substance use; and (2) examine the associations between momentary substance use and ambulatory HRV measures in pregnant and postpartum women.

Methods

Pregnant and postpartum women were identified from the ENRICH-2 prospective cohort study. Participants were administered a baseline structured phone interview that included the Coronavirus Perinatal Experiences (COPE) survey and ascertained the prevalence of substance use. Over a 14-day period, momentary substance use was assessed three times daily, and HRV measurements were captured via wearable electronics. Associations between momentary substance use and HRV measures (root mean square of successive differences [RMSSD] and low frequency/high frequency [LF/HF] ratio) were examined using a mixed effects model that included within-subject (WS) and between-subject (BS) effects and adjusted for pregnancy status and participant age.

Results

The sample included 49 pregnant and 22 postpartum women. From a combination of a baseline and 14-day mEMA surveys, 21.2% reported alcohol use, 16.9% reported marijuana use, and 8.5% reported nicotine use. WS effects for momentary alcohol use were associated with the RMSSD ($\beta = -0.14$; $p = 0.005$) and LF/HF ratio ($\beta = 0.14$; $p = 0.01$) when controlling for pregnancy status and maternal age. No significant associations were observed between HRV measures and instances of marijuana or nicotine use.

Conclusions

These findings highlight the negative effect of the SARS-CoV-2/COVID-19 pandemic on the psychological health of pregnant and postpartum women associated with substance use, and in turn, ANS dysregulation, which potentially puts some women at risk of developing a substance use disorder. (Author)

2024-04921

The determinants of maternal perception of antenatal care services during the COVID-19 pandemic critical phase: A systematic review. Bahari NI, Sutan R, Abdullah Mahdy Z, et al (2024), PLoS ONE vol 19, no 2, February 2024, e0297563

Introduction: The COVID-19 pandemic has exerted devastating effects on healthcare delivery systems, specifically those for pregnant women. The aim of this review was to determine the maternal perception of antenatal health care services during the COVID-19 pandemic critical phase.

Methods: Scopus, Web of Science, SAGE, and Ovid were systematically searched using the keywords "maternal", "COVID-19 pandemic", "maternal health service", and "maternal perception". Articles were eligible for inclusion if

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they were original articles, written in English, and published between January 1, 2020, and December 12, 2022. This review was performed based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines. Eligible articles were assessed using the Mixed Methods Appraisal Tool. Thematic analysis was used for data synthesis.

Results: Of 2683 articles identified, 13 fulfilled the inclusion criteria and were included in the narrative synthesis. Five themes emerged regarding the determinants of maternal perception of antenatal healthcare services during the COVID-19 pandemic critical phase: lack of psychosocial support, poor maternal healthcare quality, poor opinion of virtual consultation, health structure adaptation failure to meet women's needs, and satisfaction with maternal health services.

Conclusion: Maternal perception, specifically pregnant women's psychosocial and maternal health needs, should be focused on the continuation of maternal care during the COVID-19 pandemic. It is critical to identify the maternal perception of maternal health services during the pandemic to ensure health service equity in the "new normal" future.

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Full URL: https://doi.org/10.1371/journal.pone.0297563

2024-04883

Impact of COVID-19 pandemic in the Brazilian maternal mortality ratio: A comparative analysis of Neural Networks Autoregression, Holt-Winters exponential smoothing, and Autoregressive Integrated Moving Average models. Cañedo MC, Lopes TIB, Rossato L, et al (2024), PLoS ONE vol 19, no 1, January 2024, e0296064

Background and objectives: The acute respiratory infection caused by severe acute respiratory syndrome coronavirus disease (COVID-19) has resulted in increased mortality among pregnant, puerperal, and neonates. Brazil has the highest number of maternal deaths and a distressing fatality rate of 7.2%, more than double the country's current mortality rate of 2.8%. This study investigates the impact of the COVID-19 pandemic on the Brazilian Maternal Mortality Ratio (BMMR) and forecasts the BMMR up to 2025.

Methods: To assess the impact of the COVID-19 pandemic on the BMMR, we employed Holt-Winters, Autoregressive Integrated Moving Average (ARIMA), and Neural Networks Autoregression (NNA). We utilized a retrospective time series spanning twenty-five years (1996-2021) to forecast the BMMR under both a COVID-19 pandemic scenario and a controlled COVID-19 scenario.

Results: Brazil consistently exhibited high maternal mortality values (mean BMMR [1996-2019] = 57.99 ±6.34/100,000 live births) according to World Health Organization criteria. The country experienced its highest mortality peak in the historical BMMR series in the second quarter of 2021 (197.75/100,000 live births), representing a more than 200% increase compared to the previous period. Holt-Winter and ARIMA models demonstrated better agreement with prediction results beyond the sample data, although NNA provided a better fit to previous data.

Conclusions: Our study revealed an increase in BMMR and its temporal correlation with COVID-19 incidence. Additionally, it showed that Holt-Winter and ARIMA models can be employed for BMMR forecasting with lower errors. This information can assist governments and public health agencies in making timely and informed decisions.

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2024-04735

Role of integrated care in optimizing perinatal care delivery and virologic control in pregnant people with HIV during the COVID-19 pandemic. Chhabria KR, Miller ES, Yee LM, et al (2024), American Journal of Obstetrics & Gynecology MFM vol 6, no 4, April 2024, 101344

OBJECTIVE: Studies suggest the COVID-19 pandemic affected the longitudinal care of pregnant people and people with HIV (PWH); however, the extent of changes in care delivery and virologic control of pregnant PWH during the pandemic remains unclear. 1 ,2 Multidisciplinary integrated care is one proposed mechanism to maintain stability and efficacy of care provision in the general obstetric population and PWH. 3 We compared antenatal virologic control in a United States integrated care clinic for pregnant PWH before vs during the COVID-19 pandemic to identify any pandemic-related disruptions that may inform future perinatal care delivery for this population. (Author)

2024-04318

Preterm birth and stillbirth during COVID-19 pandemic in Bihor County/Romania. Galis R, Trif P, Mudura D, et al (2024), Frontiers in Global Women's Health 29 February 2024, online

Background: International studies have reported conflicting data about the effects of COVID-19 pandemic policy measures on maternal and neonatal health. A major impact was reported on stillbirth and prematurity. The published literature suggests that the economic setting influenced the effects of imposed mitigation measures with a more severe effect in low-income countries.

Objectives: Our objective is to compare pregnancy outcomes at the only tertiary Maternity Hospital in Bihor County-Romania before and during the COVID-19 pandemic. This study aims to observe and document differences in perinatal outcomes across these periods, without inferring direct causation related to the pandemic or its associated restrictions.

Materials and methods: We used data from the registries of Public Health Services Bihor to conduct a retrospective cohort analysis of preterm births and stillbirths during the COVID-19 pandemic in Bihor County, Romania. Pregnancy outcomes were compared between the pandemic period (March 2020–February 2022) to the corresponding historical pre-COVID-19 period (March 2018–February 2020). Maternal socio-demographic variables and neonatal characteristics of these periods were also examined.

Results: The COVID-19 pandemic period was associated with an increase in the stillbirth rate (RR: 1.53, 95% CI, 1.05–2.23). Preterm birth was significantly impacted during this period and showed changes when analyzing gestational age (RR: 0.88, 95% CI, 0.79–0.96) or birth weight (RR: 0.91, 95% CI, 0.82–1.00). The main cause of stillbirth was intrauterine asphyxia due to placental causes (67.6%) or cord pathology (12.6%), the most frequently encountered maternal pathology was cardiovascular (28.3%) or infectious (21.7%). Our study revealed no significant changes in terms of maternal and neonatal characteristics during the two-year pandemic period.

Conclusions: Lockdown restrictions in Bihor County, Romania were associated with an increase in stillbirths, whilst preterm birth rate decreased. This raises concerns about whether pandemic policy measures may have led to a failure in identifying and offering proper care for pregnant women who were more likely to experience an antepartum loss. Further studies across the globe are needed in order to integrate comparable data that will help develop adequate protocols and policies for protecting maternal and child health during the next pandemic that will follow. (Author)

Full URL: https://doi.org/10.3389/frph.2024.1286496

2024-04289

Impact of COVID-19 on gestational diabetes pregnancy outcomes in the UK: A multicentre retrospective cohort study. Mclennan N-M, Lindsay R, Saravanan P, et al (2024), BJOG: An International Journal of Obstetrics and Gynaecology vol 131, no 6, May 2024, pp 858-868

Objective

To determine the impact of implementing emergency care pathway(s) for screening, diagnosing and managing women with gestational diabetes (GDM) during COVID-19.

Design
Retrospective multicentre cohort.

Setting
Nine National Health Service (NHS) Hospital Trusts/Health boards in England and Scotland.

Population
4915 women with GDM pre-pandemic (1 April 2018 to 31 March 2020), and 3467 women with GDM during the pandemic (1 May 2020 to 31 March 2021).

Methods
We examined clinical outcomes for women with GDM prior to and during the pandemic following changes in screening methods, diagnostic testing, glucose thresholds and introduction of virtual care for monitoring of antenatal glycaemia.

Main Outcome Measures
Intervention at birth, perinatal mortality, large-for-gestational-age infants and neonatal unit admission.

Results
The new diagnostic criteria more often identified GDM women who were multiparous, had higher body mass index (BMI) and greater deprivation, and less frequently had previous GDM (all $p < 0.05$). During COVID, these women had no differences in the key outcome measures. Of the women, 3% were identified with pre-existing diabetes at antenatal booking. Where OGTT continued during COVID, but virtual care was introduced, outcomes were also similar pre- and during the pandemic.

Conclusions
Using HbA1c and fasting glucose identified a higher risk GDM population during the pandemic but this had minimal impact on pregnancy outcomes. The high prevalence of undiagnosed pre-existing diabetes suggests that women with GDM risk factors should be offered HbA1c screening in early pregnancy. (Author)
Full URL: https://doi.org/10.1111/1471-0528.17716

2024-04246

Early-Pregnancy Resilience Characteristics Before Versus During the COVID-19 Pandemic. Ayala NK, Fain AC, Cersonsky TEK, et al (2024), American Journal of Perinatology vol 41, no 14, October 2024, pp 2025-2028

Objective Resilience is associated with mental and somatic health benefits. Given the social, physical, and mental health toll of the coronavirus disease 2019 (COVID-19) pandemic, we examined whether the COVID-19 pandemic was associated with population-level changes in resilience among pregnant people.

Study Design Secondary analysis of a prospective cohort of nulliparous pregnant people <20 weeks' gestation from a single hospital. Participants completed baseline assessments of resilience characteristics, including dispositional optimism (DO), mindfulness, and proactive coping. For this analysis, participants recruited before the COVID-19 pandemic were compared with those recruited during the pandemic. The primary outcome was DO, assessed as a continuous score on the validated Revised Life Orientation Test. Secondary outcomes included continuous scores on mindfulness and proactive coping assessments. Bivariable analyses were completed using chi-squared and Mann–Whitney U tests. Multivariable linear regression compared resilience scores by recruitment time frame, controlling for confounders selected a priori: maternal age, education, and marital status.

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Results Of the 300 participants, 152 (50.7%) were recruited prior to the pandemic. Demographic and pregnancy characteristics differed between groups: the during-pandemic group was older, had higher levels of education, and were more likely to be married/partnered. There were no significant differences in any of the resilience characteristics before versus during the pandemic in bivariable or multivariable analyses.

Conclusion In this cohort, there were no differences in early pregnancy resilience characteristics before versus during the COVID-19 pandemic. This affirms that on a population level, resilience is a stable metric, even in the setting of a global pandemic. (Author)

2024-04019

Telemedicine for Routine Prenatal Care: Use and Satisfaction During the COVID-19 Pandemic. Wu KK, Phillippi J, Mueller M, et al (2024), Journal of Midwifery & Women's Health vol 69, no 4, July/August 2024, pp 469-478

Introduction

Telemedicine use in prenatal care has greatly expanded without substantial research. Optimizing user experiences can increase telemedicine's utilization to support care access. The purpose of this study was to explore patient and provider experiences using telemedicine for routine prenatal care during the COVID-19 pandemic, identifying factors affecting its utilization and satisfaction.

Methods

In this mixed methods study, online surveys and semi-structured interviews with pregnant and postpartum patients and perinatal providers across the United States were used to explore experiences with telemedicine and prenatal care during the COVID-19 pandemic. Data were collected from July to December 2021. Survey findings were analyzed using descriptive and inferential statistics, and interviews were thematically coded and analyzed, followed by mixed methods analysis.

Results

Results of 946 surveys (750 patients and 196 providers) and 30 interviews (15 patients and 15 providers) met inclusion for analysis. Telemedicine was utilized by 42% of patients and 72% of perinatal provider participants. The primary reason patients did not use telemedicine was because it was not offered. Patients and providers who did not use telemedicine expressed the following main concerns with virtual care: uncertainty about care quality, particularly when blood pressure and the fetal heart rate were not assessed, and potential challenges with developing trusting patient-provider relationships. Patients and providers who used telemedicine rated their experience as mild to moderate satisfaction across the 6 Telehealth Usability Questionnaire domains. Satisfaction scores were not dependent on whether physical examination components were included in virtual visits.

Discussion

Providing patients with the choice to use telemedicine as needed or combined with in-person visits for routine prenatal care may increase care utilization. Although not directly linked with satisfaction, interest in using telemedicine would likely increase for patients and providers concerned with care quality if blood pressure and fetal heart rate are assessed during virtual visits. (Author)

2024-03951

SARS-CoV-2 infection during pregnancy and the risk of adverse maternal outcomes in the Republic of Georgia: a national birth registry-based cohort study. Skhvitaridze N, Gamkrelidze A, Manjavidze T, et al (2024), BMC Pregnancy and Childbirth vol 24, no 156, February 2024

Background

Georgia experienced an increase in maternal deaths (MD) during the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic, which warrants further investigation. This study aimed to assess associations between timing of SARS-CoV-2 infection during pregnancy and MD, post-delivery intensive care unit (ICU) admission, and caesarean

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section (CS) delivery.

Methods
We performed a national birth registry-based cohort study of pregnant women who had completed 22 weeks of gestation and delivered between February 28, 2020, and August 31, 2022. The data were linked to coronavirus disease 2019 (COVID-19) testing, vital, and immunization registries. Pregnant women were classified into three groups: confirmed SARS-CoV-2 infection from conception through 31 days before delivery; confirmed infection within 30 days before or at delivery; and women negative for SARS-CoV-2 infection or without any test results (reference group). Multivariable logistic regression was used to calculate the adjusted odds ratios (aORs) and 95% confidence intervals (CIs).

Results
Among 111,493 pregnant women, 16,751 had confirmed infection during pregnancy, and 7,332 were fully vaccinated against COVID-19 before delivery. Compared to the reference group, those with confirmed infection within 30 days before or at delivery experienced increased odds of MD (aOR: 43.11, 95% CI, 21.99–84.55), post-delivery ICU admission (aOR: 5.20, 95% CI, 4.05–6.67), and CS delivery (aOR: 1.11, 95% CI, 1.03–1.20).

Conclusions
Pregnant women in Georgia with confirmed SARS-CoV-2 infection within 30 days before or at delivery experienced a considerably higher risk of MD and post-delivery ICU admission and a slightly higher risk for CS delivery. Additionally, the results highlighted that most pregnant women were not vaccinated against COVID-19. These findings should alert stakeholders that adherence to public health preventive measures needs to be improved. (Author)
Full URL: https://doi.org/10.1186/s12884-024-06329-x

2024-03815
Women's experiences of maternity care in the United Kingdom during the COVID-19 pandemic: A follow-up systematic review and qualitative evidence synthesis. Dasgupta T, Horgan G, Peterson L, et al (2024), Women and Birth: Journal of the Australian College of Midwives vol 37, no 3, May 2024, 101588

Background
Maternity care services in the United Kingdom have undergone drastic changes due to pandemic-related restrictions. Prior research has shown maternity care during the pandemic was negatively experienced by women and led to poor physical and mental health outcomes in pregnancy. A synthesis is required of published research on women's experiences of maternity care during the latter half of the COVID-19 pandemic.

Aim
To update a previous systematic review of maternity care experiences during the pandemic to June 2021, exploring experiences of maternity care specifically within the United Kingdom and how they may have changed, in order to inform future maternity services.

Methods
A systematic review of qualitative literature was conducted using comprehensive searches of five electronic databases and the Cochrane COVID Study Register, published between 1 June 2021 and 13 October 2022, and further updated to 30 September 2023. Thematic Synthesis was utilised for data synthesis.

Findings
Of 21,860 records identified, 27 studies were identified for inclusion. Findings included 14 descriptive themes across the five core concepts: (1)Care-seeking and experience; (2)Virtual care; (3)Self-monitoring; (4)COVID-19 vaccination; (5)Ethical future of maternity care.

Discussion

Our findings in the UK are consistent with those globally, and extend those of the previous systematic review, particularly about women's perceptions of the COVID-19 vaccine during pregnancy.

Conclusion

Our findings suggest the following are important to women for future maternity care: personalisation and inclusiveness; clear and evidence-based communication to facilitate informed decision-making; and achieving balance between social commitments and time spent settling into motherhood. (Author)

Full URL: https://doi.org/10.1016/j.wombi.2024.02.004

2024-03777

Nutritional Knowledge about Maternal and Newborn Health among Physiotherapists during the COVID-19 Pandemic in Minas Gerais, Brazil. Marinho I, Silva MG, Paiva T, et al (2024), Nutrients vol 16, no 2, January 2024, p 180

Adequate nutrition before and during pregnancy, as well as postpartum, is among the major contributors to maternal and newborn health. Physiotherapists' knowledge of this area is still scarce, although their clinical practice has been linked to newborns' neuropsychomotor development, which, in turn, is influenced by maternal health and nutritional status. Therefore, this study aimed to evaluate the nutritional knowledge of physiotherapists regarding maternal and newborn health. A total of 70 Brazilian physiotherapists (32.2 ± 6.0 years; 72.9% females) were evaluated between November 2019 and February 2020 for their sociodemographic characteristics, professional experience, and nutritional knowledge about maternal and newborn health through a validated questionnaire personally administered by the same trained researcher. Most of the physiotherapists had graduated but had no specialization in maternal and child physiotherapy (96.1% of the females and all the males). The nutritional knowledge about maternal and newborn health was significantly different between the female and male health professionals, as well as between the less and more experienced participants, i.e., female physiotherapists and the more experienced ones had more correct answers on the nutritional questionnaire than the male and less experienced physiotherapists, respectively ($p < 0.05$). Our results open an interesting window for the future education and training of Brazilian physiotherapists in nutrition. (Author)

Full URL: https://doi.org/10.3390/nu16020180

2024-03726

The Impact of the COVID-19 Pandemic on Health Behaviours of Pregnant Women in Poland: A Cross-Sectional Study. Janik K, Iwanowicz-Palus G, Cybulski M (2024), Nutrients vol 16, no 1, January 2024, 88

Health behaviours of pregnant women should promote an optimal course of pregnancy and maternal health. The purpose of this study was to assess the impact of COVID-19 pandemic on pregnant women's health behaviours (proper eating habits with a particular focus on the type of food consumed; preventive behaviours in terms of compliance with health recommendations and obtaining information on health and disease; healthy practices—daily habits in terms of sleep, rest and physical activity; as well as positive mental attitudes—avoiding strong emotions, stress, and depressing situations, determined by the frequency of each behaviour reported by the respondents). The study included women at different stages of pregnancy and women who were pregnant during the COVID-19 pandemic. A total of 355 women participated in the study. The study used a proprietary questionnaire and the Health Behaviour Inventory (HBI). The overall health behaviour score during the pandemic was higher (85.87) than the pre-pandemic score (82.16). There was a statistically significant difference between the total pre-pandemic and during-pandemic HBI scores. Additionally, there was an increase in the total score in each of the health behaviour domains during the pandemic period compared to the pre-pandemic results. During the COVID-19 pandemic, pregnant women presented a statistically significantly higher rate of health behaviours, as measured with the HBI, indicating that respondents were more likely to engage in health-promoting behaviours. The study has shown a positive change in pregnant women's eating habits, which can potentially affect the health of the population in the future. (Author)

Full URL: https://doi.org/10.3390/nu16010088

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2024-03712

Impact of 2 years of COVID-19 pandemic on preterm birth: Experience from a tertiary center of obstetrics in western Germany. Nagel LE, Reisch B, Schwenk U, et al (2024), International Journal of Gynecology & Obstetrics vol 166, no 1, July 2024, pp 404-411

Objective

To compare preterm birth rates and reasons before and during the COVID-19-pandemic using a monocentric, retrospective study.

Methods

Univariate analysis identified differences in rates and reasons for preterm birth and neonatal outcomes between the pre-pandemic period (January 1, 2018 to December 31, 2019) and during the pandemic (January 1, 2020 to December 31, 2021) among all births at our tertiary obstetrical center, the University Hospital of Essen.

Results

The cohort consisted of 6086 deliveries with 593 liveborn preterm singletons. During the pandemic, the incidence of preterm birth decreased (10.7% vs. 8.6%; odds ratio [OR] 0.79; 95% confidence interval [CI] 0.66–0.93). Spontaneous preterm birth (43.2% vs. 52.3%; OR 1.47; 95% CI 1.05–2.03), and placenta accreta spectrum disorder (3.7% vs. 8.2%; OR 2.36; 95% CI 1.15–4.84) were more common reasons for preterm birth. Placental dysfunction was a less common reason (34.1% vs. 24.3%; OR 0.62; 95% CI 0.43–0.90). Incidences of preterm premature rupture of membranes (28.13% vs. 40.25%; OR 1.72; 95% CI 1.12–2.43) and oligo−/anhydramnios (3.98% vs. 7.88%; OR 2.06; 95% CI 1.02–4.21) increased. Iatrogenic preterm birth decreased (54.5% vs. 49.5%; OR 0.81; 95% CI 0.58–1.13). Stillbirth rates did not change significantly. Among term births, there were fewer spontaneous deliveries (71.0% vs. 65.8%; OR 0.78; 95% CI 0.69–0.88), and more elective (12.3% vs. 15.1%; OR 1.26; 95% CI 1.07–1.50) and unplanned (9.3% vs. 10.9%; OR 1.19; 95% CI 0.98–1.45) cesarean sections. During the pandemic, more term newborns were admitted to neonatal intensive care (1.4% vs. 2.5%; OR 1.86; 95% CI 1.20–2.88).

Conclusion

Our results, in line with data from other high-income countries, suggest that the likely reason for the decreased preterm birth rates is the underdiagnosis of pregnancy complications. (Author)

Full URL: https://doi.org/10.1002/ijgo.15379

2024-03648

The effect of body mass index on maternal and perinatal outcomes in COVID-19 infection during pregnancy and postpartum: Secondary analysis from the REBRACO cohort study. Sardinha TG, Lajos GJ, Souza RT, et al (2024), International Journal of Gynecology & Obstetrics vol 164, no 3, March 2024, pp 1019-1027

Objectives

To compare maternal and perinatal outcomes among women with obesity, overweight, and normal body mass index, associated with COVID-19 infection during pregnancy and postpartum.

Method

Prospective Cohort Study, within the REBRACO (Brazilian Network of COVID-19 in Pregnancy) multicenter initiative. Confirmed positive cases of SARS-CoV-2 were included, and women categorized into three groups according to their pre-pregnancy BMI: obesity (BMI ≥ 30), overweight (BMI <30 but >25), and normal BMI. Sociodemographic, clinical, and obstetric characteristics and different maternal and perinatal outcomes were compared, and a multiple regression analysis was performed to investigate factors independently associated with adverse maternal and perinatal outcomes.

Results

Two hundred eighty-nine women positive for SARS-CoV-2 infection were considered, and 202 had available data on maternal BMI for the current analysis. Overall, 72 (35.6%)obese, 68 (33.6%) overweight, and 60 (29.7%) normal BMI.

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Obesity was associated with increased adverse clinical outcomes including sepsis (P = 0.02), acute respiratory distress syndrome (P = 0.002), and the need for mechanical ventilation (P = 0.044). Considering perinatal outcomes, a multiple regression model confirmed obesity as an independent factor associated with adverse results (adjusted odds ratio 3.73, 95% CI 1.54–9.08).

Conclusion
Obesity and overweight were associated with worse clinical outcomes, severe/critical COVID-19, and adverse perinatal outcomes. (Author)

2024-03645

Ask A Midwife: A Service Evaluation. Marsh A, Ward S, Collins S, et al (2024), The Practising Midwife vol 27, no 2, March 2024, pp 40-43

Identifying novel ways to improve communication is vital for an inclusive health service. Ask A Midwife is a collaborative social media innovation introduced during the COVID-19 pandemic. It provides a platform for women and birthing people to contact a midwife directly using social media. The aim of this service evaluation was to explore the frequency and content of messages received to inform future service provision and health promotion campaigns. (Author)

2024-03548

Understanding how COVID-19 affected black pregnant women early in the pandemic: A cross-sectional survey. Bell AJ, Afulani P, Compton S, et al (2024), Midwifery vol 130, March 2024, 103915

Objective
Previous research has shown that the COVID-19 pandemic significantly increased anxiety among pregnant women, and at the same time, COVID-19 has disproportionately affected communities of color in the United States. We sought to understand how self-identied Black pregnant women in the United States were affected in the early days of the COVID-19 pandemic.

Design
Cross-sectional, online survey distributed via social media

Setting
Online

Participants
Non-probability, convenience sample of self-identified Black pregnant women in the United States between April 3 and 24, 2020 who responded to an online inquiry seeking women who were pregnant at the outset of the COVID-19 pandemic.

Measurements and findings
An anonymous, self-administered, online survey of pregnant women was conducted, including both quantitative assessment of demographics, COVID-related anxiety, and pregnancy-related anxiety as well as open-ended prompts for qualitative assessment of the impact of COVID on prenatal care, birth plans, anxiety and overall experience of pregnancy. Quantitative data were analyzed using Stata 15.0, qualitative data were thematically analyzed using NVivo12.1. Results were compared using joint display methodology. Of 87 self-identified Black or African-American women who responded, the most common concerns related to fear of getting infected with COVID (89.7 %, N = 78) and concerns related to loss of job/income (67.8 %, N = 59). More than half (55.2 %, N = 48) reported either themselves or their family members working in essential services. Findings indicate that uncertainty, lack of support, perceived quality of care, and heightened anxiety worked together to define Black women's experiences of pregnancy in the early days of the COVID-19 pandemic in the U.S. While quantitative data did not explicitly capture reports of

discrimination as impacting perceived quality of care, the qualitative data suggest a link between fears of discrimination, the need for self-advocacy, and heightened anxiety.

Key conclusions
Despite being a relatively well-educated sample of Black women from around the United States, many respondents spoke of the fears of discrimination, the need for self-advocacy, and heightened anxiety, reinforcing that discrimination and fear of discrimation for Black women in healthcare settings are pervasive, regardless of a woman's level of education or other socioeconomic status indicators.

Implications for practice
These findings suggest that in times of uncertainty, such as the early days of the COVID-19 pandemic, it is more important than ever to provide thoughtful, supportive care to pregnant women of color who are primed for negative experiences in the healthcare settting. (Author)

2024-03542

Adverse delivery hospitalisation outcomes in 2020 during the COVID-19 pandemic. Wen T, Logue TC, Wright JD, et al (2024), BJOG: An International Journal of Obstetrics and Gynaecology vol 131, no 8, July 2024, pp 1111-1119

Objective
To evaluate risk for adverse obstetric outcomes associated with the coronavirus disease 2019 (COVID-19) pandemic period and with COVID-19 diagnoses.

Design
Serial cross-sectional study.

Setting
A national sample of US delivery hospitalisations before (1/2016 to 2/2020) and during the first 10 months of (3/2020 to 12/2020) the COVID-19 pandemic.

Population
All 2016–2020 US delivery hospitalisations in the National Inpatient Sample.

Methods
Delivery hospitalisations were identified and stratified into pre-pandemic and pandemic periods and the likelihood of adverse obstetric outcomes was compared using logistic regression models with adjusted odds ratios (aOR) with 95% confidence intervals (CI) as measures of association. Risk for adverse outcomes was also analysed specifically for 2020 deliveries with a COVID-19 diagnosis.

Main Outcome Measure
Adverse maternal outcomes including respiratory complications and cardiac morbidity.

Results
Of an estimated 18.2 million deliveries, 2.9 million occurred during the pandemic. The proportion of delivery hospitalisations with a COVID-19 diagnosis increased from 0.1% in March 2020 to 3.1% in December. Comparing the pandemic period to the pre-pandemic period, there were higher adjusted odds of transfusion (aOR 1.12, 95% CI 1.05–1.19), a respiratory complication composite (aOR 1.37, 95% CI 1.29–1.46), cardiac severe maternal morbidity (aOR 1.30, 95% 1.20–1.39), postpartum haemorrhage (aOR 1.19, 95% CI 1.15–1.24), placental abruption/antepartum haemorrhage (OR 1.04, 95% CI 1.00–1.08), and hypertensive disorders of pregnancy (OR 1.23, 95% CI 1.21–1.26). These associations were similar to unadjusted analysis. Risk for these outcomes during the pandemic period was significantly higher in the presence of a COVID-19 diagnosis.

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Conclusions
In a national estimate of delivery hospitalisations, the odds of cardiac and respiratory outcomes were higher in 2020 compared with 2016–2019. COVID-19 diagnoses were specifically associated with a range of serious complications. (Author)

2024-03382

Outpatient Use of Monoclonal Antibodies Casirivimab and Imdevimab in Pregnancy for Mild-to-Moderate Coronavirus Disease 2019. Buonomo AR, Di Filippo I, Esposito N, et al (2024), American Journal of Perinatology vol 41, no 3, February 2024, pp 365-367

Objective The aim of this study was to report the use casirivimab/imdevimab therapy in pregnant women with moderate coronavirus disease 2019 (COVID-19).

Study Design We report 12 cases of unvaccinated pregnant patients with mild-to-moderate COVID-19 treated with casirivimab/imdevimab.

Results Twelve unvaccinated pregnant patients with mild-to-moderate COVID-19 received casirivimab/imdevimab at the dose of 1200/1200 mg by intravenous infusion over 60 minutes. All women were managed outpatient. None experienced severe adverse drug reaction and none progressed to severe disease.

Conclusion Casirivimab/imdevimab should be considered for outpatient treatment of unvaccinated pregnant women with mild-to-moderate COVID-19 to decrease the risk of severe disease. (Author)

2024-03341

Severe, very early onset preeclampsia in a Covid 19-positive woman with a twin pregnancy presenting with a hydatidiform mole and coexisting normal fetus: a case report. Willy D, Schmitz R, Möllers M, et al (2024), Frontiers in Medicine 13 February 2024, online

Cases of hydatidiform moles with a coexisting fetus are sparse and patients are at high risk for severe complications. Patients and physicians often face the dilemma of the wish to continue pregnancy until viability of the fetus while the risk for maternal complications increases. We present an educational case of a twin pregnancy presenting with a hydatidiform mole and coexisting normal fetus with a placenta praevia. The patient developed severe, early onset preeclampsia with beginning HELLP-syndrome and was tested Covid-19 positive in the further course. Termination of pregnancy was conducted via caesarean section at 18 + 6 weeks of pregnancy. Histopathology and genetic analysis confirmed a complete hydatidiform mole next to a normal placenta. Close follow-up examinations were conducted and showed normal findings including ß HCG levels normalizing within 5 months. This case combines several rare, difficult and severe medical conditions and demonstrates how an individualized therapy by an interdisciplinary team covering a highly sensitive topic was developed in a situation where no guidelines exist. (Author)

Full URL: https://doi.org/10.3389/fmed.2024.1340905

2024-03141

Pregnancy and infant outcomes following SARS-CoV-2 infection in pregnancy during delta variant predominance – Surveillance for Emerging Threats to Pregnant People and Infants. Reeves EL, Neelam V, Carlson JM, et al (2024), American Journal of Obstetrics & Gynecology MFM vol 6, no 2, February 2024, 101265

BACKGROUND
SARS-CoV-2 infection in pregnancy is associated with an increased risk of adverse birth outcomes such as preterm birth, stillbirth, and maternal and infant complications. Previous research suggests an increased risk of severe COVID-19 illness and stillbirth in pregnant people during delta variant predominance in 2021; however, those studies did not assess timing of infection during pregnancy, and few of them described COVID-19 vaccination status.
OBJECTIVE
Using a large population-based cohort, this study compared pregnancy and infant outcomes and described

demographic and clinical characteristics of pregnant people with SARS-CoV-2 infection prior to and during the delta variant period.
STUDY DESIGN
This retrospective cohort analysis included persons with confirmed SARS-CoV-2 infection in pregnancy from 6 US jurisdictions reporting to the Surveillance for Emerging Threats to Pregnant People and Infants Network. Data were collected through case reports of polymerase chain reaction-positive pregnant persons and linkages to birth certificates, fetal death records, and immunization records. We described clinical characteristics and compared frequency of spontaneous abortion (<20 weeks of gestation), stillbirth (≥20 weeks), preterm birth (<37 weeks), small for gestational age, and term infant neonatal intensive care unit admission between the time periods of pre-delta and delta variant predominance. Study time periods were determined by when variants constituted more than 50% of sequences isolated according to regional SARS-CoV-2 genomic surveillance data, with time periods defined for pre-delta (March 3, 2020–June 25, 2021) and Delta (June 26, 2021–December 25, 2021). Adjusted prevalence ratios were estimated for each outcome measure using Poisson regression and were adjusted for continuous maternal age, race and ethnicity, and insurance status at delivery.
RESULTS
Among 57,563 pregnancy outcomes, 57,188 (99.3%) were liveborn infants, 65 (0.1%) were spontaneous abortions, and 310 (0.5%) were stillbirths. Most pregnant persons were unvaccinated at the time of SARS-CoV-2 infection, with a higher proportion in pre-delta (99.4%) than in the delta period (78.4%). Of those with infections during delta and who were previously vaccinated, the timing from last vaccination to infection was a median of 183 days. Compared to pre-delta, infections during delta were associated with a higher frequency of stillbirths (0.7% vs 0.4%; adjusted prevalence ratio, 1.55; 95% confidence interval, 1.14–2.09) and preterm births (12.8% vs 11.9%; adjusted prevalence ratio, 1.14; 95% confidence interval, 1.07–1.20). The delta period was associated with a lower frequency of neonatal intensive care unit admission (adjusted prevalence ratio, 0.74; 95% confidence interval, 0.67–0.82) than in the pre-delta period. During the delta period, infection during the third trimester was associated with a higher frequency of preterm birth (adjusted prevalence ratio, 1.41; 95% confidence interval, 1.28–1.56) and neonatal intensive care unit admission (adjusted prevalence ratio, 1.21; 95% confidence interval, 1.01–1.45) compared to the first and second trimester combined.
CONCLUSION
In this US-based cohort of persons with SARS-CoV-2 infection in pregnancy, the majority were unvaccinated, and frequencies of stillbirth and preterm birth were higher during the delta variant predominance period than in the pre-delta period. During the delta period, frequency of preterm birth and neonatal intensive care unit admission was higher among infections occurring in the third trimester vs those earlier in pregnancy. These findings demonstrate population-level increases of adverse fetal and infant outcomes, specifically in the presence of a COVID-19 variant with more severe presentation. (Author)

2024-03059

Early suppression policies protected pregnant women from COVID-19 in 2020: A population-based surveillance from the Nordic countries. Varpula R, Äyräs O, Aabakke AJM, et al (2024), Acta Obstetricia et Gynecologica Scandinavica vol 103, no 6, June 2024, pp 1063-1072

Introduction
The Coronavirus 2019 Disease (COVID-19) pandemic reached the Nordic countries in March 2020. Public health interventions to limit viral transmission varied across different countries both in timing and in magnitude. Interventions indicated by an Oxford Stringency Index ≥50 were implemented early (March 13–17, 2020) in Denmark, Finland, Norway and Iceland, and on March 26, 2020 in Sweden. The aim of the current study was to assess the incidence of COVID-19-related admissions of pregnant women in the Nordic countries in relation to the different national public health strategies during the first year of the pandemic.

Material and methods
This is a meta-analysis of population-based cohort studies in the five Nordic countries with national or regional surveillance in the Nordic Obstetric Surveillance System (NOSS) collaboration: national data from Denmark, Finland,

Iceland and Norway, and regional data covering 31% of births in Sweden. The source population consisted of women giving birth in the included areas March 1–December 31, 2020. Pregnant women with a positive SARS-CoV-2 PCR test ≤14 days before hospital admission were included, and admissions were stratified as either COVID-19-related or non-COVID (other obstetric healthcare). Information about public health policies was retrieved retrospectively.

Results

In total, 392 382 maternities were considered. Of these, 600 women were diagnosed with SARS-CoV-2 infection and 137 (22.8%) were admitted for COVID-19 symptoms. The pooled incidence of COVID-19 admissions per 1000 maternities was 0.5 (95% confidence interval [CI] 0.2 to 1.2, I2 = 77.6, tau2 = 0.68, P = 0.0), ranging from no admissions in Iceland to 1.9 admissions in the Swedish regions. Interventions to restrict viral transmission were less stringent in Sweden than in the other Nordic countries.

Conclusions

There was a clear variation in pregnant women's risk of COVID-19 admission across countries with similar healthcare systems but different public health interventions to limit viral transmission. The meta-analysis indicates that early suppression policies protected pregnant women from severe COVID-19 disease prior to the availability of individual protection with vaccines. (Author)

Full URL: https://doi.org/10.1111/aogs.14808

2024-02906

Inequalities in access to prenatal care during the COVID-19 pandemic: Analysis of a population-based cohort.

Hetherington E, Darling E, Harper S, et al (2024), Paediatric and Perinatal Epidemiology vol 38, no 4, May 2024, pp 291-301

Background

Before the COVID-19 pandemic, access to prenatal care was lower among some socio-demographic groups. This pandemic caused disruptions to routine preventative care, which could have increased inequalities.

Objectives

To investigate if the COVID-19 pandemic increased inequalities in access to prenatal care among those who are younger, live in rural areas, have a lower socio-economic situation (SES) and are recent immigrants.

Methods

We used linked administrative datasets from ICES to identify a population-based cohort of 455,245 deliveries in Ontario from January 2018 to December 2021. Our outcomes were first-trimester prenatal visits, first-trimester ultrasound and adequacy of prenatal care. We used joinpoint analysis to examine outcome time trends and identify trend change points. We stratified analyses by age, rural residence, SES and recent immigration, and examined risk differences (RD) with 95% confidence intervals (CI) between groups at the beginning and end of the study period.

Results

For all outcomes, we noted disruptions to care beginning in March or April 2020 and returning to previous trends by November 2020. Inequalities were stable across groups, except recent immigrants. In July 2017, 65.0% and 69.8% of recent immigrants and non-immigrants, respectively, received ultrasounds in the first trimester (RD −4.8%, 95% CI −8.0, −1.5). By October 2020, this had increased to 75.4%, with no difference with non-immigrants (RD 0.4%, 95% CI −2.4, 3.2). Adequacy of prenatal care showed more intensive care as of November 2020, reflecting a higher number of visits.

Conclusions

We found no evidence that inequalities between socio-economic groups that existed prior to the pandemic worsened after March 2020. The pandemic may be associated with increased access to care for recent immigrants. The introduction of virtual visits may have resulted in a higher number of prenatal care visits. (Author)

Full URL: https://doi.org/10.1111/ppe.13050

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2024-02833

Quality of life following a maternal near-miss event during the COVID-19 pandemic at a tertiary care center in South India. Santhosh S, Vimalraj S, Kalpana MM (2024), International Journal of Gynecology & Obstetrics vol 165, no 2, May 2024, pp 823-829

Objective

To assess the quality of life (QoL) in women following a maternal near-miss event and to assess the women's attitude towards future fertility and their contraceptive choices.

Methods

A cross-sectional observational study was conducted in Government Medical College, Kozhikode, India among women who had experienced a near-miss event (n = 50) between January 1, 2020 and May 31, 2021 during the peak of the COVID-19 pandemic. The QoL was assessed using the WHO Quality of Life, BREF Version, questionnaire, which was administered to the consenting participants over phone. Information regarding desire for future fertility, contraceptive choices, and urogenital symptoms was also collected. A comparison between the short-term and long-term effects on the QoL was also done.

Results

A maternal near-miss event was not found to adversely affect the overall quality of life in the present study. The scores in all the four domains—physical, psychological, social relationships, and environmental—suggested good QoL, although greater variability in values were observed in the physical and psychological domains. The influence in these two domains was more pronounced following a perinatal loss and following prolonged physical morbidities. There was no difference in short- and long-term QoL following a maternal near miss (MNM). The MNM did not influence the contraceptive choices and there was no subsequent pelvic floor dysfunction in most women.

Conclusion

MNM was not found to adversely affect the overall subsequent QoL in the present study. There was no difference in short- and long-term QoL following a MNM. Studies carried out over a longer period of time with a control group would yield more information. (Author)

2024-02826

Timing of selective serotonin reuptake inhibitor use and risk for preterm birth and related adverse events: with a consideration of the COVID-19 pandemic period. Hwang YM, Roper RT, Piekos SN, et al (2024), Journal of Maternal-Fetal and Neonatal Medicine vol 37, no 1, 2024, 2313364

Objective

There is uncertainty around the safety of SSRIs for treating depression during pregnancy. Nevertheless, the use of SSRIs has been gradually increasing, especially during the COVID-19 pandemic period. We aimed to (1) characterize maternal depression rate and use of SSRIs in a recent 10-year period, (2) address confounding by indication, as well as socioeconomic and environmental factors, and (3) evaluate associations of the timing of SSRI exposure in pregnancy with risk for preterm birth (PTB), low birthweight (LBW), and small for gestational age (SGA) infants among women with depression before pregnancy.

Methods

We conducted propensity score-adjusted regression to calculate odds ratios (ORs) of PTB, LBW, and SGA. We accounted for maternal/pregnancy characteristics, comorbidity, depression severity, time of delivery, social vulnerability, and rural residence.

Results

There were 50.3% and 40.3% increases in the prevalence rate of prenatal depression and prenatal SSRI prescription

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rate during the pandemic. We identified women with depression ≤180 days before pregnancy (n = 8406). Women with no SSRI order during pregnancy (n = 3760) constituted the unexposed group. The late SSRI exposure group consisted of women with an SSRI order after the first trimester (n = 3759). The early-only SSRI exposure group consisted of women with SSRI orders only in the first trimester (n = 887). The late SSRI exposure group had an increased risk of PTB of OR = 1.5 ([1.2,1.8]) and LBW of OR = 1.5 ([1.2,2.0]), relative to the unexposed group. Associations between late SSRI exposure and risk of PTB/LBW were similar among a subsample of patients who delivered during the pandemic.

Conclusions
These findings suggest an association between PTB/LBW and SSRI exposure is dependent on exposure timing during pregnancy. Small for gestational age is not associated with SSRI exposure. (Author)
Full URL: https://doi.org/10.1080/14767058.2024.2313364

2024-02520

Acceptance of Routine Vaccines in Pregnancy during the COVID-19 Pandemic. Perelman AD, Trostle ME, Pecoriello J, et al (2023), American Journal of Perinatology 21 November 2023, online

Objective This study aimed to evaluate the rates of vaccination against infectious diseases (Tetanus, Diphtheria, and Pertussis [Tdap] and influenza) in pregnancy during the coronavirus disease 2019 (COVID-19) pandemic compared to contemporary historical controls.

Study Design This was a retrospective cohort study comparing rates of Tdap and influenza vaccination in pregnant people who received care at NYU Langone Health and delivered from September 1, 2020, to January 31, 2021 ("COVID cohort") to the same period the prior year ("2019 cohort"). Demographic information, trimester of initiation of prenatal care, insurance status, and medical comorbidities were evaluated. Outcomes were analyzed using chi-square, Fisher's exact test, and multivariable logistic regression, with significance of $p < 0.05$.

Results In total, 1,713 pregnant people were included. Compared to historical controls, the COVID cohort differed in age, race, timing of initiation of prenatal care, insurance status, and medical comorbidities. After adjusting for these covariates, pregnant people were significantly more likely to accept influenza vaccine in the COVID cohort (adjusted odds ratio [aOR] 1.7, 95% confidence interval [CI] 1.27–2.29) and had similar Tdap acceptance (aOR 1.5, 95% CI 0.99–2.17). However, this trend was not observed for the entire obstetric population; public insurance status and medical comorbidities were associated with lower vaccine rates during the pandemic. For those who had public insurance, rates of influenza vaccination decreased from 83% in 2019 to 40% during COVID (aOR 0.16, 95% CI 0.10–0.24) and for Tdap rates decreased from 93 to 54% (aOR 0.13, 95% CI 0.08–0.21).

Conclusion During the COVID-19 pandemic era, pregnant people at large were more likely to accept the influenza vaccine. However, this trend did not apply to Tdap, and high-risk groups with public insurance and medical comorbidities. This study highlights potential disparities in vaccination rates, which need to be accounted for when evaluating national vaccine trends. These data support increased efforts in vaccine counseling for high-risk populations. (Author)

2024-02508

Thrombotic Markers in Pregnant Patients with and without SARS-CoV-2 Infection. Bruno AM, Allshouse AA, Benson AE, et al (2023), American Journal of Perinatology 7 December 2023, online

Background Coronavirus disease 2019 (COVID-19) is associated with coagulation abnormalities and increased risk for venous and arterial thrombi. This study aimed to evaluate D-dimer levels and lupus anticoagulant (LAC) positivity in pregnant individuals with and without Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection.

Study Design This was a prospective cohort study of pregnant individuals delivering at a single academic institution from April 2020 to March 2022. Individuals with a positive SARS-CoV-2 result during pregnancy were compared with a

convenience sample of those without a positive SARS-CoV-2 result. For individuals with SARS-CoV-2 infection, severity was assessed based on the National Institutes of Health classification system. The primary outcome was D-dimer level measured during delivery admission. The secondary outcomes were LAC positivity and thromboembolic events. Outcomes were compared between individuals with and without a positive SARS-CoV-2 result, and further by disease severity.

Results Of 98 participants, 77 (78.6%) were SARS-CoV-2 positive during pregnancy. Among individuals with SARS-CoV-2 infection, severity was asymptomatic in 20 (26.0%), mild in 13 (16.9%), moderate in 4 (5.2%), severe in 38 (49.4%), and critical in 2 (2.6%). The D-dimer concentration at delivery did not significantly differ between those with a SARS-CoV-2 positive result compared with those without (mean 2.03 µg/mL [95% confidence interval {CI} 1.72–2.40] vs. 2.37 µg/mL [95% CI 1.65–3.40]; p = 0.43). Three individuals (4%) with SARS-CoV-2 infection and none (0%) without infection were LAC positive (p = 0.59). There were no clinically apparent thromboses in either group. D-dimer concentrations and LAC positive results did not differ by COVID-19 severity.

Conclusion Thrombotic markers did not differ in pregnant individuals by SARS-CoV-2 infection; however, high rates of LAC positivity were detected. (Author)

2024-02503

How Did the COVID-19 Pandemic Affect Maternal and Neonatal Health?. Dogan NN, Salihoglu O (2023), American Journal of Perinatology 15 December 2023, online

Objective The aim of this study was to investigate the effects of the coronavirus disease 2019 (COVID-19) pandemic on the proportional growth of the fetus, maternal health, and neonatal outcomes.

Study Design The study group (Group 1) included pregnant women with a history of COVID-19. Pregnant women who were hospitalized during the same period without COVID-19 were the control group (Group 2). Maternal and neonatal outcomes were compared between the groups.

Results A total of 230 pregnant women and their infants were assessed. Group 1 (n = 74) had significantly higher rates of diabetes mellitus and hypertension than Group 2 (n = 156; p = 0.015 and 0.014, respectively). Premature birth and cesarean section rates were also significantly higher in Group 1 than in Group 2 (p = 0.001 and 0.040, respectively). While the rate of iatrogenic preterm birth was significantly higher in Group 1, the rate of spontaneous preterm birth was significantly higher in Group 2 (p = 0.049). Infants born to COVID-19-positive mothers had lower median gestational age, birth weight, and Apgar scores ($p < 0.01$). There was no significant difference between the groups in terms of the results of cord blood gas analysis ($p > 0.05$). The rate of admission to the neonatal intensive care unit (NICU) and need for mechanical ventilation was significantly higher in infants of COVID-19-positive mothers ($p < 0.05$ for both). The length of stay in the NICU was also significantly longer for the infants of COVID-19-positive mothers ($p < 0.05$). Birth weights decreased due to increased cases of iatrogenic preterm births ($p < 0.05$). However, ponderal indices (PIs) of newborns of pregnant COVID-19 mothers did not differ at birth ($p > 0.05$).

Conclusion COVID-19 is associated with low Apgar scores, increased risk of premature birth complications, and maternal comorbidities, with no effect on the PI and proportionate growth of the infant at birth. (Author)

2024-02498

COVID-stasis of Pregnancy: An Increased Prevalence of COVID-19 in Patients with Cholestasis. Holden MG, Schmiech KV, Martinez Telleria M, et al (2023), American Journal of Perinatology 23 December 2023, online

Objective To evaluate the relationship between intrahepatic cholestasis of pregnancy (ICP) and coronavirus disease 2019 (COVID-19).

Study Design We performed a retrospective cohort study of pregnant women undergoing induction of labor (IOL) at

a single institution between May 2020 to January 2021. Primary exposure was diagnosis of intrahepatic cholestasis of pregnancy (ICP). The primary outcome was the prevalence of COVID-19 as determined by reverse-transcriptase polymerase chain reaction testing on nasopharyngeal swabs for SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2) on routine admission testing. Secondary outcomes were abnormal laboratory values and adverse fetal outcomes. Logistic regression with log link analysis was performed comparing patients undergoing IOL for ICP compared with IOL for all other indications. The moderating effect of ethnicity was assessed by the interaction between ethnicity and ICP in a logistic regression model. The Wilcoxon rank-sum test and Fisher's exact test were performed for the secondary outcome analyses.

Results Over the course of the study, 596 patients underwent IOL: 24 for ICP and 572 for other indications. The overall prevalence of COVID-19 positivity in the cohort was 5.5% (33 of 596). Those with ICP were more likely to test positive for COVID-19 compared with those with other IOL indications (29.2 vs. 4.5%, RR = 6.4, 95% CI: 2.8–12.5, $p < 0.001$). All patients with ICP who tested positive for COVID-19 were Hispanic. To analyze the moderating effect of ethnicity, the results of the logistic model found the interaction between ethnicity and ICP to not be significant ($p = 0.991$). In patients with ICP, the median AST (aspartate aminotransferase) was higher than those with COVID-19 ($p = 0.0182$). There were no adverse fetal outcomes in the ICP group.

Conclusion In this single-site retrospective cohort study, we demonstrated an increased prevalence of COVID-19 in those with ICP in general and among Hispanic patients specifically. Despite this difference, there was no increased risk of adverse fetal outcomes. (Author)

2024-02485

Maternal COVID-19 Infection Associated with Fetal Systemic Inflammatory Complications in COVID-19-Negative Neonates: A Case-Series. McKissic D, Perez FA, Puia-Dumitrescu M, et al (2024), American Journal of Perinatology 11 January 2024, online

Objective This study aimed to examine fetal and neonatal inflammatory and neurologic complications associated with maternal coronavirus disease 2019 (COVID-19) infection.

Study Design Case-series using a convenience sample of neonates cared for in a large referral-based children's hospital neonatal intensive care unit between September 2021 and May 2022.

Results We identified seven neonates with exposure to maternal severe acute respiratory syndrome related coronavirus 2 (SARS-CoV-2) and a presentation consistent with inflammatory complications. All had some degree of neurologic injury with neuroimaging findings including restricted diffusion indicating injury in the white matter, cortex, deep gray structures, and splenium of the corpus callosum as well as intracranial hemorrhage. In addition, many infants had cytopenia and abnormal coagulation studies. Placental pathology, when available, revealed inflammation, clot with calcifications, and hematomas with associated infarcts.

Conclusion Neonates born to mothers with SARS-CoV-2, even when negative for the virus themselves, may have complications consistent with a systemic inflammatory syndrome. Placental pathology as well as neurologic imaging in infants with neurologic findings may help to support this diagnosis. (Author)

2024-02468

Women's experiences of early pregnancy loss services during the pandemic: A qualitative investigation. George-Carey R, Memtsa M, Kent-Nye FE, et al (2024), Women and Birth: Journal of the Australian College of Midwives vol 37, no 2, March 2024, pp 394-402

Problem

Early pregnancy losses [EPL] are common, varied, and require different courses of management and care.

Background
In the UK, women who suspect or suffer a pregnancy loss are usually provided specialist care in early pregnancy assessment units [EPAUs]. Their configuration has recently been evaluated, but recommendations for change in-line with best practice for optimum outcomes were unable to be implemented due to the COVID-19 pandemic health system shock.

Aim
To compare women's experiences of EPAUs during the pandemic to themes previously found in qualitative work undertaken with women who utilised EPAUs before the pandemic.

Methods
We conducted semi-structured virtual interviews, with women (N = 32) who suffered an early pregnancy loss during the pandemic; analysing transcripts using Template Analysis, based on findings about women's (pre-pandemic) experiences of EPAU from The VESPA Study.

Findings
We report on seven key themes: Barriers to Accessing Services; Communication & Information; Retention of Relational Care; Involvement in Care Decisions; Staffs' Attitude or Approach; Efficiency of Service Delivery; Sensitive Patient Management.

Discussion
Sensitive patient management and woman-staff interactions in EPAU settings remain a fundamental issue. Women also reported their experiences of EPAUs were comparatively worse during the pandemic.

Conclusions
Women valued the care provided by EPAUs and found services to be efficient, despite pandemic-related restrictions. However, psychological recognition surrounding EPL and appropriate, sensitive, relational care and support continue to be areas in need of improvement. Our recommendation is to implement the improvements suggested by VESPA as a priority to ameliorate present sub-optimal experiences and prevent further deterioration. (Author)
Full URL: https://doi.org/10.1016/j.wombi.2023.12.004

2024-02464

Telehealth use in maternity care during a pandemic: A lot of bad, some good and possibility. Collins E, Keedle H, Jackson M, et al (2024), Women and Birth: Journal of the Australian College of Midwives vol 37, no 2, March 2024, pp 419-427

Background
To reduce transmission risk during the COVID-19 pandemic, 'telehealth' (health care delivered via telephone/video-conferencing) was implemented into Australian maternity services. Whilst some reports on telehealth implementation ensued, there was scant evidence on women and midwives' perspectives regarding telehealth use.

Methods
A qualitative study was conducted in Australia during 2020–2021 using two data sources from the Birth in the Time of COVID-19 (BITTOC) study: i) interviews and ii) surveys (open-text responses). Content analysis was utilised to analyse the data and explore telehealth from the perspective of midwives and women accessing maternity care services. In-depth interviews were conducted with 20 women and 16 midwives. Survey responses were provided from 687 midwives and 2525 women who were pregnant or gave birth in 2021, generating 212 and 812 comments respectively.

Findings
Telehealth delivery was variable nationally and undertaken primarily by telephone/videoconferencing. Perceived benefits included: reduced COVID-19 transmission risk, increased flexibility, convenience and cost efficiency.

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However, women described inadequate assessment, and negative impacts on communication and rapport development. Midwives had similar concerns and also reported technological challenges.

Conclusion
During the COVID-19 pandemic, telehealth offered flexibility, convenience and cost efficiency whilst reducing COVID-19 transmission, yet benefits came at a cost. Telehealth may particularly suit women in rural and remote areas, however, it also has the potential to further reduce equitable, and appropriate care delivery for those at greatest risk of poor outcomes. Telehealth may play an adjunct role in post-pandemic maternity services, but is not a suitable replacement to traditional face-to-face maternity care. (Author)
Full URL: https://doi.org/10.1016/j.wombi.2023.12.008

2024-02346

COVID-19 in Pregnancy: Influence of Body Weight and Nutritional Status on Maternal and Pregnancy Outcomes—A Review of Literature and Meta-Analysis. Attini R, Laudani ME, Versino E, et al (2023), Nutrients vol 15, no 4, February 2023, 1053

In the last two and a half years, COVID-19 has been one of the most challenging public health issues worldwide. Based on the available evidence, pregnant women do not appear to be more susceptible to infection than the general population but having COVID-19 during pregnancy may increase the risk of major complications for both the mother and the fetus. The aim of this study is to identify the correlation between BMI and nutritional status and the likelihood of contracting COVID-19 infection in pregnancy, its severity, and maternal pregnancy outcomes. We carry out a systematic literature search and a meta-analysis using three databases following the guidelines of the Cochrane Collaboration. We include 45 studies about COVID-19-positive pregnant women. Compared with normal-weight pregnant women with COVID-19, obesity is associated with a more severe infection (OR = 2.32 [1.65–3.25]), increased maternal death (OR = 2.84 [2.01–4.02]), and a higher rate of hospital admission (OR = 2.11 [1.37–3.26]). Obesity may be associated with adverse maternal and pregnancy outcomes by increasing symptom severity and, consequently, hospital and Intensive Care Unit (ICU) admission, and, finally, death rates. For micronutrients, the results are less definite, even if there seems to be a lower level of micronutrients, in particular Vitamin D, in COVID-19-positive pregnant women. (Author)
Full URL: https://doi.org/10.3390/nu15041053

2024-02244

sFlT-1/PlGF ratio as a predictor of preeclampsia in COVID-19 pregnant patients. Pluta K, Januszewski M, Ziuzia-Januszewska L, et al (2024), BMC Pregnancy and Childbirth vol 24, no 94, January 2024

The association between SARS-CoV-2 infection in pregnancy and preeclampsia is widely debated in numerous studies. The aim of our study was to investigate whether an increased sFlt-1/PlGF ratio is a good marker of preeclampsia in pregnant patients with COVID-19 infection. This single centre prospective study was conducted in the Department of Obstetrics and Gynaecology, at the Central Clinical Hospital of the Ministry of the Interior and Administration in Warsaw. The study group consisted of 68 COVID-19 pregnant patients and 57 SARS-CoV-2 negative pregnant controls. Serum sFlt-1/PlGF ratio was assessed. The two groups did not differ in terms of the frequency of IVF, nulliparity, history of hypertension, pre-gestational diabetes and chronic kidney disease. The primary outcome was the diagnosis of preeclampsia. Preeclampsia was diagnosed in 10 patients in both groups. The sFlt-1/PlGF ratio higher than 38, considered highly suggestive of developing preeclampsia, was found in 20 patients in the COVID-19 group and 15 patients in the control group. The odds of developing preeclampsia in patients with sFlt-1/PlGF ratio > 38 was approximately 4-fold higher in COVID-19 group and 11-fold higher in controls. Sflt-1/PlGF ratio does not differ significantly between the SARS-CoV-2-positive and SARS-COV-2-negative pregnant patients. The sFlt-1/PlGF ratio > 38 is associated with higher odds of the diagnosis of preeclampsia in both of these groups, and therefore may serve as its marker regardless of COVID-19 infection status. (Author)
Full URL: https://doi.org/10.1186/s12884-024-06263-y

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2024-02216

Impact of COVID-19 convalescence on pregnancy outcomes in patients undergoing IVF/ICSI during fresh ART cycles: a retrospective cohort study. Cao M, Han Y, Feng T, et al (2024), Frontiers in Endocrinology 29 January 2024, online

Objective: The aim was to study the impact of coronavirus disease 2019 (COVID-19) convalescence on female fertility and laboratory and clinical outcomes in fresh assisted reproductive technology (ART) cycles.

Methods: In this retrospective cohort study, we analyzed data from 294 patients who had recovered from COVID-19 and who underwent fresh ART cycles between January and March 2023 (COVID-19 group). This group was compared with 631 patients who underwent similar ART cycles in the same period in 2022 but without having been infected with COVID-19 (non-COVID-19 group). The analysis focused on comparison of basic demographic characteristics and laboratory parameters of patients in each group. The primary outcome measure was the clinical pregnancy rate, which was examined to assess the impact of COVID-19 infection on the efficacy of ART treatment.

Results: Basal follicle-stimulating hormone (FSH) levels were significantly lower and antral follicle count (AFC) was markedly higher in the COVID-19 group compared to the non-COVID-19 group (P<0.001 and P=0.004, respectively). The predominant ovarian stimulation protocol in the COVID-19 group was GnRH antagonists (64.85%, P<0.001), with a reduced gonadotropin (Gn) dosage and duration in comparison to the non-COVID-19 group (P<0.05). Although the number of blastocysts formed was lower in the COVID-19 group (P=0.017), this group also exhibited a higher blastocyst freezing rate and a higher rate of high-quality embryos per retrieved oocyte (P<0.001 and P=0.023, respectively). Binary logistic regression analysis indicated that COVID-19 convalescence did not significantly impact clinical pregnancy rates in fresh transfer cycles (odds ratio [OR] = 1.16, 95% confidence interval [CI] = 0.68-1.96, P=0.5874). However, smooth curve-fitting and threshold effect analysis revealed an age-related decline in clinical pregnancy rates in both groups, more pronounced in the COVID-19 group, for women aged over 38 years, with the likelihood of clinical pregnancy decreasing by 53% with each additional year of age (odds ratio [OR] = 0.81, 95% confidence interval [CI] = 0.61–1.08, P=0.1460; odds ratio [OR] = 0.47, 95% CI = 0.21–1.05, P=0.0647).

Conclusions: Our findings present no substantial evidence of adverse effects on clinical pregnancy outcomes in fresh ART cycles in patients undergoing in vitro fertilization (IVF) or intracytoplasmic sperm injection (ICSI) during the period of convalescence from COVID-19. However, age emerges as a significant factor influencing these outcomes. Notably, for women above 38 years of age, the likelihood of clinical pregnancy in patients with a prior COVID-19 infection decreased by 53% with each additional year. This highlights the importance of considering maternal age, especially in the context of COVID-19, when evaluating the likelihood of successful pregnancy following ART treatments. (Author)

Full URL: https://doi.org/10.3389/fendo.2023.1298995

2024-02187

Tolerability and outcomes of monoclonal antibody therapy for COVID-19 during pregnancy. Schenone CV, Thornton B, Delgado A, et al (2023), AJOG Global Reports vol 3, no 4, November 2023, 100286

OBJECTIVE: The World Health Organization has reported over 6 million COVID-related deaths, including over 300 cases in the pregnant population in the United States alone.1 In November 2020, Emergency Use Authorization of monoclonal antibodies (mAb) was issued for patients with mild-to-moderate COVID-19 at risk of progression to severe disease given favorable reports in at-risk nonpregnant adults who received these agents.2 The US Food and Drug Administration later added pregnancy to this high-risk category.3 However, the use of mAb in pregnant individuals was challenged by the scarcity of evidence, limited availability, and increased prevalence of mAb-resistant strains. Consequently, the literature behind using mAb for COVID-19 during pregnancy remained scant compared with nonpregnant adults.4 Closing this gap is critical for counseling pregnant individuals who may benefit from this treatment modality as new strains emerge. Therefore, our study objectives were to report on the tolerability, rate of hospitalization for disease progression, and pregnancy outcomes of the largest single cohort of pregnant individuals receiving mAb treatment for COVID-19.

STUDY DESIGN: We conducted a single-center retrospective review of pregnant individuals who received mAb

treatment for mild-to-moderate COVID-19 at our institution from May 2021 to May 2022. Patients were identified from an institutional COVID-19 registry following approval by the University of South Florida Institutional Review Board. Patients were considered vaccinated if they had received 2 doses of a messenger RNA COVID-19 vaccine or 1 dose of an adenoviral vector–based COVID-19 vaccine. Mild-to-moderate COVID-19 was defined as presence of flu-like symptoms, abnormal imaging and/or refractory fever while maintaining oxygen saturation of 94% or higher on room air. We obtained maternal age, body mass index, parity, gestational age at diagnosis, latency to treatment, treatment setting, mAb type, mAb administration route, and COVID-19-related hospitalizations for progression to severe disease following treatment. We assessed mAb tolerability based on the rate of mAb infusion–related reactions, defined as any signs or symptoms experienced during or immediately after mAb treatment. In addition, we obtained medical comorbidities, pregnancy-related complications, delivery mode, and postpartum complications.

RESULTS: A total of 370 pregnancies were diagnosed with SARS-CoV-2. Within this group, 103 patients with mild or moderate disease received mAb therapy. One patient experienced an infusion-related reaction characterized by transient hot flush, chest discomfort, and shortness of breath that resolved with intravenous diphenhydramine. Similarly, only 1 patient required hospital admission due to progression to severe disease following treatment. No maternal deaths occurred. A summary of sociodemographic characteristics and clinical outcomes is presented in Table. (Author)

Full URL: https://doi.org/10.1016/j.xagr.2023.100286

2024-02186

Association between social media use for medical information during pregnancy and likelihood of vaccination against COVID-19. Jaswa EG, Lindquist KJ, Hariton E, et al (2023), AJOG Global Reports vol 3, no 4, November 2023, 100262

OBJECTIVE: Pregnant individuals are a high-risk group for COVID-19 because of an increased risk for adverse outcomes.1 Vaccines are effective at preventing severe disease.2 However, obstacles to universal vaccine uptake remain.3

There are several factors that could impact vaccine acceptance during pregnancy, including the source of medical information upon which individuals rely. It is unknown whether the use of social media for medical information during pregnancy influences COVID-19 vaccination uptake.

We examined the Assessing the Safety of Pregnancy in the Coronavirus Pandemic (ASPIRE) cohort4 to test the hypothesis that the use of social media for medical information during pregnancy would be associated with a reduced likelihood of COVID-19 vaccination.

STUDY DESIGN: Between April 2020 and December 2021, 7880 pregnant individuals aged ≥18 years at <10 weeks' gestation consented to an institutional review board–approved prospective cohort study of pregnancy and infant outcomes in relation to pandemic factors, including COVID-19 infection and vaccination (ASPIRE).4 A total of 3018 participants from all 50 US states completed online questionnaires. The research team was based in San Francisco, California. At the end of the third trimester, participants were asked about the sources of medical information used during pregnancy, categorized as healthcare provider, friends and family, social media, and other pregnancy websites. Individuals were asked to indicate all sources and their primary resource.

To evaluate associations between the baseline characteristics and social media use as a source of medical information, bootstrapped (1000 reps) linear regression models and multinomial logistic regression models were used. A logistic regression was used to test for the association between social media use and vaccination with adjustment for other sources of medical information and covariates selected a priori, including age, race, ethnicity, education, household income, recruitment cohort, and healthcare worker status. Statistical analyses were performed in STATA v17.0 (StataCorp, College Station, TX).

RESULTS: The most common sources of medical information were healthcare provider (86%) and pregnancy websites

(85%). A total of 52% of participants used social media and 54% reported friends or family as sources. Most participants reported multiple information sources. Of the 3018 participants, 2664 (88%) received COVID-19 vaccines (2121 during pregnancy).

Social media use was more common among Hispanic individuals, individuals who were employed full time, and who did not work in a healthcare field. (Author)

Full URL: https://doi.org/10.1016/j.xagr.2023.100262

2024-02120

Type of delivery and perinatal outcomes in pregnant women diagnosed with COVID-19: A systematic review and meta-analysis. Villar da Motta AS, Ma Y, Sardeli AV, et al (2024), European Journal of Obstetrics & Gynecology and Reproductive Biology vol 292, January 2024, pp 112-119

Background

There is paucity in the literature that provides a comprehensive and evidence-based conclusion regarding this topic.

Objective

To compare perinatal outcomes of vaginal and caesarean section delivery in women diagnosed with COVID-19 by meta-analysis of literature.

Search Strategy

The search was conducted on MEDLINE, EMBASE, LILACS, CINAHL, Scopus, Web of Science and Cochrane Database of Systematic Reviews by 25th May 2022.

Selection criteria

The inclusion criteria involved pregnant women diagnosed with COVID-19 who underwent caesarean section and those who had vaginal deliveries.

Data collection and analysis

The included studies were meta-analyzed for various outcomes including: Gestational age, maternal intensive care unit admission, maternal death, prematurity, newborn birth weight, newborn intensive care unit admission, Apgar scores, newborn death, and newborn vertical transmission of COVID-19. The meta-analysis was conducted using Comprehensive Meta-Analysis (CMA) software, version 3.3.070.

Main results

The meta-analyses included 2,566 deliveries (866 caesarean sections and 1,700 vaginal deliveries) and identified that caesarean section was significantly associated with increased prematurity (OR 2.5 [1.7; 3.6], $p < 0.001$), lower birth weight (−118 g [−170; −66], $p < 0.001$), and a higher need for maternal (OR 9.54 [5.22; 17.43], $p < 0.01$) and neonatal intensive care unit intervention (OR 3.67 [2.71; 4.96], $p < 0.01$) compared to vaginal delivery.

Conclusion

COVID-19 infection alone should not be an indication for caesarean section as there is insufficient evidence that caesarean section reduces mortality, improves birth conditions, or prevents vertical transmission. Additionally, caesarean section is associated with poorer perinatal outcomes compared to vaginal delivery. (Author)

2024-02096

The effects of lockdown during the COVID-19 pandemic on fetal movement profiles. Reissland N, Ustun B, Einbeck J (2024), BMC Pregnancy and Childbirth vol 24, no 56, January 2024

Purpose

The current study investigated the direct impact of the COVID-19 lockdown on fetal movements, addressing a critical research gap. While previous research has predominantly examined the effects of lockdown on maternal health and postnatal outcomes, little attention has been paid to the direct consequences on fetal well-being as indicated by their movement profile.

Methods

We conducted analysis of movement profiles in 20 healthy fetuses during the COVID-19 pandemic lockdown (third

national UK lockdown period between January and March 2021) and compared them with 20 healthy fetuses from pre-covid pregnancies, all at 32 weeks gestation. We controlled for maternal stress, depression, and anxiety.

Results

Pregnant mothers during pre-covid compared with those during the COVID-19 lockdown reported similar levels of stress (p = 0.47), depression (p = 0.15), and anxiety (p = 0.07). Their fetuses, however, differed in their movement profiles with mouth movement frequencies significantly higher during COVID-19 lockdown (COVID-19 lockdown: mean of 5.909) compared to pre-Covid pregnancies (mean of 3.308; p = 0.029). Furthermore, controlling for maternal anxiety a regression analysis indicated that frequency of fetal mouth movements (p = 0.017), upper face movements (p = 0.008), and touch movements (p = 0.031) were all significantly higher in fetuses observed during lockdown compared to fetuses before the Covid period.

Conclusion

Fetuses show an effect of lockdown independent of maternal anxiety, stress, or depression. These findings contribute to our understanding of fetal development during extraordinary circumstances, raising questions about the potential effects of having to stay indoors during lockdowns. (Author)

Full URL: https://doi.org/10.1186/s12884-024-06259-8

2024-02089

Respectful maternity care in Israel during the Covid-19 pandemic: a cross-sectional study of associations between childbirth care practices and women's perceptions of care. Palgi-Hacker H, Sacks E, Landry M (2024), BMC Pregnancy and Childbirth vol 24, no 50, January 2024

Background

Respectful maternity care is a crucial part of quality care and is associated with better health outcomes. Early in the Covid-19 pandemic, reports from across the world indicated that infection containment measures were often implemented in ways that resulted in disrespectful care of women during facility-based childbirths in violation of evidence-based practices. This study aimed to explore the associations between childbirth care practices and perceptions of care as satisfactory and respectful among women who delivered in Israeli hospitals during the first six months of the Covid-19 pandemic.

Methods

A cross-sectional self-administered online survey was conducted to explore women's perceptions of maternity care using an adapted version of the WHO Community Survey Tool for measuring how women are treated during facility-based childbirth. Multivariate logistic regression models evaluated the associations between sociodemographic characteristics, obstetric information, and measurements of childbirth experiences and women's perceptions of receiving respectful and satisfactory care.

Results

The responses of 981 women were included in the analysis. While the majority of women perceived the care they received as both respectful (86.54%) and satisfactory (80.22%), almost 3 in 4 women (72.68%) reported experiencing at least one type of disrespectful care. Positive communication with the medical staff and respect for autonomy were associated with a more positive birth experience for women. Women were more likely to perceive their care as respectful if they did not feel ignored (AOR = 40.11;22.87–70.34). Perception of satisfactory care was more likely among women who had the opportunity to discuss preferences with the medical staff (AOR = 10.15; 6.93–14.86). Having Covid-19 procedures explained increased the likelihood of reporting respectful and satisfactory care (AOR = 2.89;1.91–4.36; AOR = 2.83;2.01–4).

Conclusion

Understanding which care practices are associated with women's perceptions of care at facility-based births is critical to ensuring quality care. The findings of this study can inform future work and research aimed at enhancing respectful

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maternity care during times of crisis and beyond. (Author)
Full URL: https://doi.org/10.1186/s12884-023-06030-5

2024-02072

Assessing COVID-related concerns and their impact on antenatal and delivery care among pregnant women living with HIV in Kenya: a brief report. Wexler C, Maloba M, Mokua S, et al (2024), BMC Pregnancy and Childbirth vol 24, no 46, January 2024

Background

Some studies indicate that pregnant Kenyan women were concerned about Coronavirus disease 2019 (COVID-19) exposure during maternity care. We assessed concern regarding COVID-19 exposure and any impact on antenatal care (ANC) enrollment and/or hospital delivery among pregnant women living with human immunodeficiency virus (HIV) in Kenya.

Methods

Data were collected from 1,478 pregnant women living with HIV enrolled in prevention of mother to child transmission of HIV (PMTCT) care at 12 Kenyan hospitals from October 2020 to July 2022. Surveys were conducted when women first presented for PMTCT services at the study hospital and asked demographic questions as well as items related to concerns about COVID-19. A 5-point Likert scale (strongly disagree to strongly agree) assessed concerns about COVID-19 exposure and travel challenges. Gestational age at PMTCT enrollment, number of ANC appointments attended, and delivery location were compared among women who expressed COVID-19 concerns and those who did not.

Results

Few women reported delaying antenatal care (4.7%), attending fewer antenatal care appointments (5.0%), or having concerns about a hospital-based delivery (7.7%) because of COVID-19. More (25.8%) reported travel challenges because of COVID-19. There were no significant differences in gestational age at enrollment, number of ANC appointments, or rates of hospital-based delivery between women with concerns about COVID-19 and those without,

Conclusion

Few pregnant women living with HIV expressed concerns about COVID-19 exposure in the context of routine ANC or delivery care. Women with and without concerns had similar care seeking behaviors. The recognized importance of routine ANC care and facility-based deliveries may have contributed to these positive pregnancy indicators, even among women who worried about COVID-19 exposure.

Trial registration

www.clinicaltrials.gov identifier NCT04571684. (Author)
Full URL: https://doi.org/10.1186/s12884-023-06216-x

2024-02071

Multi-organ dysfunction and outcomes in pregnancy associated COVID-19 infection – descriptive review of pathological findings. Turdybekova YG, Kopobayeva IL, Turmukhambetova AA, et al (2024), BMC Pregnancy and Childbirth vol 24, no 45, January 2024

Objective(s)

Comparative clinical and morphological characterization of lesions of the vascular and nervous system in cases of maternal death associated with COVID-19.

Study design

The study included autopsy in 12 cases of maternal death with a positive intravital result for SARS-CoV-2 by reverse transcription polymerase chain reaction. For histopathology, tissue samples were taken from the internal organs of

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each patient. Pieces of organs were fixed and stained according to the standard protocol. The relative number of microvessels with vasculitis and fibers of the peripheral nervous system with infiltration by immune cells was studied. All morphological changes were classified depending on the severity of the damage.

Results
The average age of patients with a fatal outcome was 35 ± 4.4 years. Time to death after onset of symptoms averaged 16 ± 4.4 days. Dystrophic lesions (necrosis and apoptosis) of the villous and extravillous trophoblast and decidual tissue were observed in the studied placentas. Histopathological signs of mild and severe lesions of the peripheral nervous system in the organs of the gastrointestinal tract were detected in 2 (16.7%) and 10 (83.3%) cases, respectively, in the myocardium in 4 (33.3%) and 8 (66.7%) cases. Histopathological signs of severe damage to the microvascular bed in the organs of the gastrointestinal tract were registered in 9 (75%) cases.

Conclusion(s)
The main clinical feature of this cohort was that death occurred in a long-term period, in most cases with a negative PCR. The histopathological pattern was a non-acute injury with an immune component of the microvascular bed and the autonomic nervous system with predominant damage to the myocardium and intestines.

What does this study add to the clinical work
This study makes it possible to even better study the immunopathological profile in organs and tissues in pregnant women with a fatal outcome when affected by a viral infection, in particular Covid-19. This knowledge can be used when humanity encounters other viral pandemics in the future. (Author)
Full URL: https://doi.org/10.1186/s12884-023-06240-x

2024-02030
Safety and efficacy of COVID-19 vaccine immunization during pregnancy in 1024 pregnant women infected with the SARS-CoV-2 Omicron virus in Shanghai, China. Deng H, Jin Y, Sheng M, et al (2024), Frontiers in Immunology 16 January 2024, online
Background: Large sample of pregnant women vaccinated with COVID-19 vaccine has not been carried out in China. The objective of this study was to evaluate the safety and effectiveness of COVID-19 inactivated vaccine in pregnant women infected with the SARS-CoV-2 Omicron variant.

Methods: A total of 1,024 pregnant women and 120 newborns were enrolled in this study. 707 pregnant women received one to three doses of the inactivated COVID-19 vaccine, and 317 unvaccinated patients served as the control group. A comparison was made between their clinical and laboratory data at different stages of pregnancy.

Results: The incidence rate of patients infected with Omicron variant in the first, the second, and the third trimesters of pregnancy was 27.5%, 27.0%, and 45.5% in patients during, respectively. The corresponding length of hospital stay was 8.7 ± 3.3 days, 9.5 ± 3.3 days, and 11 ± 4.3 days, respectively. The hospitalization time of pregnant women who received 3 doses of vaccine was (8.8 ± 3.3) days, which was significantly shorter than that of non-vaccinated women (11.0 ± 3.9) days. (P<0.0001). The positive rate of SARS-CoV-2 IgG in patients in the early stage of pregnancy was 28.8%, while that in patients in the late stage of pregnancy was 10.3%. However, three-doses of vaccination significantly increased the SARS-CoV-2 IgG positive rate to 49.5%. The hospitalization time of SARS-CoV-2 IgG-positive patients was shorter than that of negative patients (9.9 ± 3.5 days), which was 7.4 ± 2.0 days. 12.2% of vaccinated women experienced mild adverse reactions, manifested as fatigue (10.6%) and loss of appetite (1.6%). The vaccination of mother did not affect her choice of future delivery mode and the Apgar score of their newborn. All newborns tested negative for SARS-CoV-2 nucleic acid, as well as for IgG and IgM antibodies.

Conclusions: Women in the third trimester of pregnancy are highly susceptible to infection with the Omicron strain. The vaccination of pregnant women with COVID-19 vaccine can accelerate the process of eliminating SARS-CoV-2 virus, and is considered safe for newborns. The recommended vaccination includes three doses. (Author)

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Full URL: https://doi.org/10.3389/fimmu.2023.1303058

2024-01909

Maternal and Perinatal Outcomes of Pregnant Patients with Coronavirus Disease 2019: Data from a University Hospital Setting in Tirana, Albania, May 2020 to November 2021. Prifti E, Como N, Vrapi E, et al (2023), Infectious Diseases in Obstetrics and Gynecology vol 2023, 14 June 2023, 4032010

Scientific evidence suggests an increased risk of maternal and obstetric complications in pregnant patients infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). This study is aimed at evaluating perinatal and maternal outcomes among patients with coronavirus disease 2019 (COVID-19) in a university hospital setting. This was a prospective cohort study of 177 pregnant women with confirmed SARS-CoV-2 infection at a tertiary hospital between May 2020 and November 2021. Both symptomatic and asymptomatic women with a positive reverse transcription-polymerase chain reaction test result at any time during pregnancy were included in this study. For the purpose of this study, we classified COVID-19 cases into two groups: mild and severe cases. The two groups were then compared to predict how the clinical presentation of COVID-19 affected adverse maternal and perinatal outcomes. Gestational age ≥ 20 weeks at the time of infection was significantly associated with the occurrence of severe forms of the disease (relative risk (RR) 3.98, $p = 0.01$). Cesarean section was the preferred mode of delivery, with 95 women (62.1%) undergoing surgery. A total of 149 neonates were delivered to women who had confirmed SARS-CoV-2 infection at any time during the course of pregnancy of which thirty-five (23.5%) were admitted to the neonatal intensive care unit (NICU). Severe forms of COVID-19 increased the risk of premature delivery (RR 6.69, $p < 0.001$), emergency cesarean delivery (RR 9.4, $p < 0.001$), intensive care hospitalization (RR 51, $p < 0.001$), and maternal death (RR 12.3, $p = 0.02$). However, severe forms of SARS-CoV-2 infection are not directly responsible for low birth weight or the need for neonatal resuscitation. Our findings suggest that pregnant women presenting with severe COVID-19 disease are at an increased risk of adverse maternal and perinatal outcomes, such as premature delivery, cesarean section, admission to the ICU, and maternal death. Infection after the 20th week of gestation increases the risk of developing severe forms of the disease.

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Full URL: https://doi.org/10.1155/2023/4032010

2024-01821

Accessing health information during the COVID-19 pandemic: the experience of NHS maternity service users. Ambihaipahan R, Chisnall G, Vindrola-Padros C, et al (2023), BMC Pregnancy and Childbirth vol 23, no 851, December 2023

Background

The COVID-19 pandemic caused various disruptions to NHS maternity services in England. Changes were made to antenatal and postnatal care and the way that information was shared with maternity service users during these times. Fewer face-to-face appointments, increased virtual appointments and changes in guidance about the suitability of the COVID-19 vaccine without appropriate information sharing and evidence caused concern.

Methods

This study took a blended inductive-deductive approach to secondary data analysis using a population subset of 16 from a wider study that sought to understand the impact of COVID-19 on maternity services in England. Participants of this study were aged 28–44 and gave birth using NHS maternity services in England. The data were collected and coded using Rapid Analysis Procedure sheets, which generated key themes, which are used here to structure the results.

Results

Four main themes were generated from the analysis: 1) service restrictions to antenatal and postnatal appointments 2) access to information and changes to antenatal and postnatal care 3) inconsistencies in the implementation of government and NHS policy and 4) limited information about COVID-19 vaccine provided by NHS trusts and hesitancy in vaccine acceptance.

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Conclusion

Participants experienced poor communication that affected their understanding of maternity service changes and there was limited general and maternal health information provided. Vaccine information was also inadequate, and participants expressed a desire for clearer guidance. The UK Government, Royal College of Obstetricians and Gynaecologists, and NHS must collaborate with maternity service users to ensure that there are evidence-based guidelines and policies that can be understood and standardised across all NHS maternity trusts. (Author)

Full URL: https://doi.org/10.1186/s12884-023-06160-w

2024-01817

Reduction in spontaneous and iatrogenic preterm births in twin pregnancies during COVID-19 lockdown in Melbourne, Australia: a multicenter cohort study. Manno JM, Marzan MB, Rolnik DL, et al (2023), BMC Pregnancy and Childbirth vol 23, no 846, December 2023

Background

Melbourne, Australia, recorded one of the longest and most stringent pandemic lockdowns in 2020, which was associated with an increase in preterm stillbirths among singleton pregnancies. Twin pregnancies may be particularly susceptible to the impacts of pandemic disruptions to maternity care due to their higher background risk of adverse perinatal outcomes.

Methods

Multicenter retrospective cohort study of all twin pregnancies birthing in public maternity hospitals in Melbourne. Multivariable log-binomial regression models were used to compare perinatal outcomes between a pre-pandemic group to women in whom weeks 20+0 to 40+0 of gestation occurred entirely during one of two lockdown-exposure periods: exposure 1 from 22 March 2020 to 21 March 2021 and exposure 2 from 22 March 2021 to 27 March 2022.

Results

Total preterm births < 37 weeks were significantly lower in exposure 1 compared with the pre-pandemic period (63.1% vs 68.3%; adjusted risk ratio 0.92 95% CI 0.87–0.98, p = 0.01). This was mainly driven by fewer spontaneous preterm births (18.9% vs 20.3%; adjusted risk ratio 0.95 95% CI 0.90–0.99, p = 0.04). There were also lower rates of preterm birth < 34 weeks (19.9% vs 23.0%, adjusted risk ratio 0.93 95% CI 0.89–0.98 p = 0.01) and total iatrogenic births for fetal compromise (13.4% vs 20.4%; adjusted risk ratio 0.94 95% CI 0.89–0.98, p = 0.01). There were fewer special care nursery admissions (38.5% vs 43.4%; adjusted risk ratio 0.91 95% CI 0.87–0.95, p < 0.001) but no significant changes in stillbirth (1.5% vs 1.6%; adjusted risk ratio 1.00 95% CI 0.99–1.01, p = 0.82). Compared with the pre-pandemic period, there were more preterm births < 28 weeks and neonatal intensive care unit admissions in exposure 2.

Conclusions

Melbourne's first lockdown-exposure period was associated with lower preterm births in twins without significant differences in adverse newborn outcomes. Our findings provide insights into the influences on preterm birth and the optimal timing of delivery for twins. (Author)

Full URL: https://doi.org/10.1186/s12884-023-06137-9

2024-01726

Outcomes of SARS-CoV-2 infection in early pregnancy—A systematic review and meta-analysis. Rodriguez-Wallberg KA, Nilsson HP, Røthe EB, et al (2024), Acta Obstetricia et Gynecologica Scandinavica vol 103, no 5, May 2024, pp 786-798

Introduction

Available data on severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection and pregnancy outcomes mostly refer to women contracting the infection during advanced pregnancy or close to delivery. There is limited information on the association between SARS-CoV-2 infection in early pregnancy and outcomes thereof.

Material and methods

We aimed to systematically review the maternal, fetal and neonatal outcomes following SARS-CoV-2 infection in early pregnancy, defined as <20 weeks of gestation (PROSPERO Registration 2020 CRD42020177673). Searches were carried out in PubMed, Medline, EMBASE, and Scopus databases from January 2020 until April 2023 and the WHO database of publications on coronavirus disease 2019 (COVID-19) from December 2019 to April 2023. Cohort and case–control studies on COVID-19 occurring in early pregnancy that reported data on maternal, fetal, and neonatal outcomes were included. Case reports and studies reporting only exposure to SARS-CoV-2 or not stratifying outcomes based on gestational age were excluded. Data were extracted in duplicate. Meta-analyses were conducted when appropriate, using R meta (R version 4.0.5).

Results

A total of 18 studies, 12 retrospective and six prospective, were included in this review, reporting on 10 147 SARS-CoV-2-positive women infected in early pregnancy, 9533 neonates, and 180 882 SARS-CoV-2 negative women. The studies had low to moderate risk of bias according to the Newcastle–Ottawa quality assessment Scale. The studies showed significant clinical and methodological heterogeneity. A meta-analysis could be performed only on the outcome miscarriage rate, with a pooled random effect odds ratio of 1.44 (95% confidence interval 0.96–2.18), showing no statistical difference in miscarriage in SARS-CoV-2-infected women. Individual studies reported increased incidences of stillbirth, low birthweight and preterm birth among neonates born to mothers affected by COVID-19 in early pregnancy; however, these results were not consistent among all studies.

Conclusions

In this comprehensive systematic review of available evidence, we identified no statistically significant adverse association between SARS-CoV-2 infection in early pregnancy (before 20 weeks of gestation) and fetal, neonatal, or maternal outcomes. However, a 44% increase in miscarriage rate is concerning and further studies of larger sample size are needed to confirm or refute our findings. (Author)

Full URL: https://doi.org/10.1111/aogs.14764

2024-01703

A qualitative analysis of gestational surrogates' healthcare experiences during the COVID-19 pandemic. Yee S, Lindsay EA, Laszlo TL, et al (2024), Midwifery vol 128, January 2024, 103888

Objective

No empirical data are available on the healthcare experiences of surrogates during the COVID-19 pandemic. This study aimed to examine the impact of pandemic-control measures on surrogates' fertility, pregnancy and birthing experiences.

Methods

Sampling frame included eligible surrogates who were actively involved in a surrogacy process at an academic IVF centre during the pandemic (03/2020 to 02/2022). Data were collected between 29/04/2022 and 31/07/2022 using an anonymous 85-item online survey that included twelve open-ended questions. Free-text comments were analysed by thematic analysis.

Findings

The response rate was 50.7% (338/667). Of the 320 completed surveys used for analysis, 609 comments were collected from 206 respondents. Twelve main themes and thirty-six sub-themes grouped under 'vaccination', 'fertility treatment', 'pregnancy care', and 'surrogacy birth' were identified. Three in five surrogates found the control measures highly or moderately affected their surrogacy experiences. Themes involving loneliness and isolation frequently emerged when essential surrogacy support was restricted by the visitor protocols implemented at healthcare facilities.

Discussion

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Our findings show that restricting or limiting intended parents' in-person involvement increased surrogates' feelings of isolation and made the overall surrogacy experience less rewarding and fulfilling. Furthermore, the childbirth experiences of surrogates were mostly negative, suggesting that hospitals were ill-equipped to manage all births, including surrogacy births, during the pandemic.

Implications for practice
Our findings highlight the needs to rethink how surrogacy care and maternity services could be strengthened to better serve the needs of surrogates during times of public health crises, such as COVID-19, while still allowing for risk mitigation and maximising patient safety. (Author)

2024-01668

Immigration and C-sections incidence: Maternal care and perinatal outcomes in the context of the pandemic in Chile.
Escobar MBC, Silva N, Ortíz-Contreras J, et al (2023), Frontiers in Global Women's Health 22 November 2023, online

Introduction: Immigration has increased significantly in Chile. Despite that all pregnant women, regardless of nationality and immigration status, have the right to access to all healthcare services during pregnancy, childbirth, and postpartum, inequities in health care outcomes and health provision have been reported. During COVID-19 pandemic, these inequities are completely unknown.

Objective: The aim of this study was to compare the incidence of c-sections according to mother's migration status, as well as other maternal care and perinatal outcomes in women giving birth at San José Hospital in Santiago, Chile, during the COVID-19 pandemic.

Methods: A retrospective cohort study was designed including 10,166 registered single births at the San José Hospital between March 2020 and August 2021. To compare between groups, statistical tests such as Chi-square and Fisher's exact were used. Log Binomial regression models were performed adjusted for potential confounding variables. To estimate the strength of association the relative risk was used.

Results: Immigrant mothers account for 48.1% of the registered births. Compared to non-immigrant women, immigrants exhibit a higher proportion of c-section, specifically, emergency c-section (28.64% vs. 21.10%; p-value < 0.001) but a lower proportion of and having a preterm birth (8.24% vs. 13.45%; $p < 0.05$), receiving personalized childbirth care (13.02% vs. 14.60%; p-value < 0.05), companion during labor and childbirth (77.1% vs. 86.95%; p-value < 0.001), And postpartum attachment to newborn (73% vs. 79.50%; p-value < 0.001). The proportion of COVID exposure was not significant between groups, not the severity also. Haitians had a highest risk of undergoing emergency c-section (aRR = 1.61) and Venezuelans had a highest risk of elective c-section (aRR = 2.18) compared to non-immigrants.

Conclusion: This study reports high rates of c-sections in the entire population, but in immigrant populations it is even higher. Additionally, it found gaps in maternal care and perinatal outcomes between immigrants and non-immigrants. More studies are needed to elucidate the possible causes of these differences and establish new regulations to protect the reproductive rights of the immigrant population. (Author)
Full URL: https://doi.org/10.3389/fgwh.2023.1267156

2024-01659

Report of the ISTH registry on pregnancy and COVID-19-associated coagulopathy (COV-PREG-COAG). Kazi S, Othman M, Malinowski AK, et al (2024), Obstetric Medicine vol 17, no 1, March 2024, pp 13–21

Background
Concerns about COVID-19-associated coagulopathy (CAC) in pregnant individuals were raised in early pandemic.
Methods
An ISTH-sponsored COVID-19 coagulopathy in pregnancy (COV-PREG-COAG) international registry was developed to

describe incidence of coagulopathy, VTE, and anticoagulation in this group.
Results
All pregnant patients with COVID-19 from participating centers were entered, providing 430 pregnancies for the first pandemic wave. Isolated abnormal coagulation parameters were seen in 20%; more often with moderate/severe disease than asymptomatic/mild disease (49% vs 15%; p < 0.0001). No one met the ISTH criteria for DIC, though 5/21 (24%) met the pregnancy DIC score. There was no difference in APH with asymptomatic/mild disease versus moderate/severe disease (3.4% vs 7.7%; p = 0.135). More individuals with moderate/severe disease experienced PPH (22.4% vs 9.3%; p = 0.006). There were no arterial thrombotic events. Only one COVID-associated VTE was reported.
Conclusions
Low rates of coagulopathy, bleeding, and thrombosis were observed among pregnant people in the first pandemic wave. (Author)
Full URL: https://doi.org/10.1177/1753495X231206931

2024-01649

Pregnant women's attitudes towards complementary and alternative medicine and the use of phytotherapy during the COVID-19 pandemic: A cross-sectional study. Durmaz A, Gun Kakasci C (2024), PLoS ONE vol 19, no 1, January 2024, e0296435

Background: Approximately 80% of individuals worldwide use various holistic complementary and alternative medicine (HCAM) methods, including herbal products, to prevent diseases and improve their general health. In this study, it was aimed to investigate complementary and alternative therapy (CAM) and the use of phytotherapy by pregnant women in the COVID-19 pandemic period.

Methods: This is a cross-sectional and descriptive study. The study included 381 women who applied to a public hospital in Türkiye and used herbal products during this pregnancy. Purposive sampling method was used. The study data were collected through "Identifying Information Form", "Holistic Complementary and Alternative Medicine Questionnaire (HCAMQ)" and "Information Form on the Use of Phytotherapy". In the analysis of the study data, descriptive statistics, the one-way ANOVA and multinomial logistic regression analyses were used.

Results: The study was completed with 381 pregnant women. The average age, parity and gestational age of the pregnant women were 28.33±6.09, 2.17±0.95, 29.11±8.87, respectively. It was determined that 37.3% of pregnant women did not know the ingredients of the herbal products they used and 38.8% found them safer than the drugs. HCAMQ total mean score of the pregnant women was calculated as 34.62±16.22. It was found that the pregnant women used garlic the most (65.6%), followed by cumin (38.6%), curcuma (36.2%), and ginger (34.4%). HCAMQ total mean score was found to be lower in the pregnant women who found herbal products safer than drugs ($p<0.001$), who were not aware of the content of the herbal product they used ($p<0.001$), and who used herbal products so as to protect against COVID-19 ($p = 0.041$), to increase their physical resistance ($p = 0.022$), and to facilitate childbirth ($p = 0.002$). It was determined that among the pregnant women who knew the content of the herbal products they used (Odds Ratio (OR) 1.122; 1.095-1.149 95%CI; $p<0.001$) and who did not know (OR 1.114; 1.085-1.144 95%CI; $p<0.001$), as negative attitude towards HCAM increased, their status of finding traditional drugs safer increased. Among the pregnant women who used herbal products to protect against COVID-19 (OR 1.142; 1.111-1.174 95%CI; $p<0.001$) and to increase their physical resistance (OR 1.120; 1.094-1.147 95%CI; $p<0.001$), as negative attitude towards HCAM increased, their status of finding conventional drugs safer increased.

Conclusion: In today's world where the use of herbal products and CAM has become widespread, it is important to raise the awareness of pregnant women about the benefits and harms of these practices about which there is inadequate evidence.

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Full URL: https://doi.org/10.1371/journal.pone.0296435

2024-01600

Anti-SARS-CoV-2-specific antibodies in human breast milk following SARS-CoV-2 infection during pregnancy: a prospective cohort study. Fernández-Buhigas I, Rayo N, Silos JC, et al (2024), International Breastfeeding Journal vol 19, no 5, January 2024

Background

While the presence of SARS-CoV-2 in human breast milk is contentious, anti-SARS-CoV-2 antibodies have been consistently detected in human breast milk. However, it is uncertain when and how long the antibodies are present.

Methods

This was a prospective cohort study including all consecutive pregnant women with confirmed SARS-CoV-2 infection during pregnancy, recruited at six maternity units in Spain and Hong Kong from March 2020 to March 2021. Colostrum (day of birth until day 4 postpartum) and mature milk (day 7 postpartum until 6 weeks postpartum) were prospectively collected, and paired maternal blood samples were also collected. Colostrum samples were tested with rRT-PCR-SARS-CoV-2, and skimmed acellular milk and maternal sera were tested against SARS-CoV-2 specific immunoglobulin M, A, and G reactive to receptor binding domain of SARS-CoV-2 spike protein 1 to determine the presence of immunoglobulins. Then, we examined how each immunoglobulin type in the colostrum was related to the time of infection by logistic regression analysis, the concordance between these immunoglobulins in the colostrum, maternal serum, and mature milk by Cohen's kappa statistic, and the relationship between immunoglobulin levels in mature milk and colostrum with McNemar.

Results

One hundred eighty-seven pregnant women with confirmed SARS-CoV-2 infection during pregnancy or childbirth were recruited and donated the milk and blood samples. No SARS-CoV-2 was found in the human breast milk. Immunoglobulin A, G, and M were present in 129/162 (79·6%), 5/163 (3·1%), and 15/76 (19·7%) colostrum samples and in 17/62 (27·42%), 2/62 (3·23%) and 2/62 (3·23%) mature milk samples, respectively. Immunoglobulin A was the predominant immunoglobulin found in breast milk, and its levels were significantly higher in the colostrum than in the mature milk (p-value < 0.001). We did not find that the presence of immunoglobulins in the colostrum was associated with their presence in maternal, the severity of the disease, or the time when the infection had occurred.

Conclusions

Since anti-SARS-CoV-2 antibodies are found in the colostrum irrespective of the time of infection during pregnancy, but the virus itself is not detected in human breast milk, our study found no indications to withhold breastfeeding, taking contact precautions when there is active disease. (Author)

Full URL: https://doi.org/10.1186/s13006-023-00605-w

2024-01464

The association of post–embryo transfer SARS-CoV-2 infection with early pregnancy outcomes in in vitro fertilization: a prospective cohort study. Li XF, Zhang YJ, Yao YL, et al (2024), American Journal of Obstetrics & Gynecology (AJOG) vol 230, no 4, April 2024, pp 436.e1-436.e12

Background

The influence of SARS-CoV-2 infection after embryo transfer on early pregnancy outcomes in in vitro fertilization or intracytoplasmic sperm injection–embryo transfer treatment remains inadequately understood. This knowledge gap endures despite an abundance of studies investigating the repercussions of preceding SARS-CoV-2 infection on early pregnancy outcomes in spontaneous pregnancies.

Objective

This study aimed to investigate the association between SARS-CoV-2 infection within 10 weeks after embryo transfer and early pregnancy outcomes in patients undergoing in vitro fertilization/intracytoplasmic sperm injection treatment.

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Study Design

This prospective cohort study was conducted at a single public in vitro fertilization center in China. Female patients aged 20 to 39 years, with a body mass index ranging from 18 to 30 kg/m2, undergoing in vitro fertilization/intracytoplasmic sperm injection treatment, were enrolled between September 2022 and December 2022, with follow-up extended until March 2023. The study tracked SARS-CoV-2 infection time (≤14 days, ≤28 days, and ≤10 weeks after embryo transfer), symptoms, vaccination status, the interval between vaccination and embryo transfer, and early pregnancy outcomes, encompassing biochemical pregnancy rate, implantation rate, clinical pregnancy rate, and early miscarriage rate. The study used single-factor analysis and multivariate logistic regression to examine the association between SARS-CoV-2 infection status, along with other relevant factors, and the early pregnancy outcomes.

Results

A total of 857 female patients undergoing in vitro fertilization/intracytoplasmic sperm injection treatment were analyzed. In the first stage, SARS-CoV-2 infection within 14 days after embryo transfer did not have a significant negative association with the biochemical pregnancy rate (adjusted odds ratio, 0.74; 95% confidence interval, 0.51–1.09). In the second stage, SARS-CoV-2 infection within 28 days after embryo transfer had no significant association with the implantation rate (36.6% in infected vs 44.0% in uninfected group; P=.181). No statistically significant association was found with the clinical pregnancy rate after adjusting for confounding factors (adjusted odds ratio, 0.69; 95% confidence interval, 0.56–1.09). In the third stage, SARS-CoV-2 infection within 10 weeks after embryo transfer had no significant association with the early miscarriage rate (adjusted odds ratio, 0.77; 95% confidence interval, 0.35–1.71).

Conclusion

Our study suggests that SARS-CoV-2 infection within 10 weeks after embryo transfer may not be negatively associated with the biochemical pregnancy rate, implantation rate, clinical pregnancy rate, and early miscarriage rate in patients undergoing in vitro fertilization/intracytoplasmic sperm injection treatment. It is important to note that these findings are specific to the target population of in vitro fertilization/intracytoplasmic sperm injection patients aged 20 to 39 years, without previous SARS-CoV-2 infection, and with a body mass index of 18 to 30 kg/m2. This information offers valuable insights, addressing current concerns and providing a clearer understanding of the actual risk associated with SARS-CoV-2 infection after embryo transfer. (Author)

2024-01303

Researching COVID to enhance recovery (RECOVER) pregnancy study: Rationale, objectives and design. Metz TD, Clifton RG, Gallagher R, et al (2023), PLoS ONE vol 18, no 12, December 2023, e0285351

Importance: Pregnancy induces unique physiologic changes to the immune response and hormonal changes leading to plausible differences in the risk of developing post-acute sequelae of SARS-CoV-2 (PASC), or Long COVID. Exposure to SARS-CoV-2 during pregnancy may also have long-term ramifications for exposed offspring, and it is critical to evaluate the health outcomes of exposed children. The National Institutes of Health (NIH) Researching COVID to Enhance Recovery (RECOVER) Multi-site Observational Study of PASC aims to evaluate the long-term sequelae of SARS-CoV-2 infection in various populations. RECOVER-Pregnancy was designed specifically to address long-term outcomes in maternal-child dyads.

Methods: RECOVER-Pregnancy cohort is a combined prospective and retrospective cohort that proposes to enroll 2,300 individuals with a pregnancy during the COVID-19 pandemic and their offspring exposed and unexposed in utero, including single and multiple gestations. Enrollment will occur both in person at 27 sites through the Eunice Kennedy Shriver National Institutes of Health Maternal-Fetal Medicine Units Network and remotely through national recruitment by the study team at the University of California San Francisco (UCSF). Adults with and without SARS-CoV-2 infection during pregnancy are eligible for enrollment in the pregnancy cohort and will follow the protocol for RECOVER-Adult including validated screening tools, laboratory analyses and symptom questionnaires followed by more in-depth phenotyping of PASC on a subset of the overall cohort. Offspring exposed and unexposed in utero to SARS-CoV-2 maternal infection will undergo screening tests for neurodevelopment and other health outcomes at 12, 18, 24, 36 and 48 months of age. Blood specimens will be collected at 24 months of age for SARS-CoV-2

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antibody testing, storage and anticipated later analyses proposed by RECOVER and other investigators.

Discussion: RECOVER-Pregnancy will address whether having SARS-CoV-2 during pregnancy modifies the risk factors, prevalence, and phenotype of PASC. The pregnancy cohort will also establish whether there are increased risks of adverse long-term outcomes among children exposed in utero.

Clinical trials.gov identifier: Clinical Trial Registration: http://www.clinicaltrials.gov. Unique identifier: NCT05172011.

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Full URL: https://doi.org/10.1371/journal.pone.0285351

2024-01300

Severe Covid-19 in pregnant and postpartum women admitted to an intensive care unit: A retrospective cohort study.
Melo Mendes IC, Martins de Oliveira AL, Martins Pinheiro Trindade P, et al (2023), PLoS ONE vol 18, no 12, December 2023, e0295444

Background: SARS-CoV-2 infection is associated with worse maternal and fetal outcomes. This study aims to describe the characteristics of pregnant and postpartum women with severe Covid-19 admitted to ICU.

Methods and findings: It's a retrospective cohort study evaluating pregnant and postpartum women referenced to a specialized ICU between May 2020 and June 2022. Covid-19 was confirmed with RT-PCR or rapid antigen test on a nasopharyngeal swab. Variables were described by median and IQR when numerical, and by frequency and percentage when categorical. OR with 95% CI were calculated for the evaluation of factors related to death. P-values were calculated using Pearson's χ2-test, Fisher's exact test, Wilcoxon rank sum test, and Kruskall-Wallis test, and statistical significance was established as < 0·05. Missing data were excluded. All statistical analysis were performed using R software version 4.2.2. Of the 101 admissions, 85 (84·2%) were of pregnant women. Obesity (23·0%) and systemic arterial hypertension (13·0%) were the most prevalent medical conditions. Sixty-six (65·3%) were admitted using some type of oxygen support. Forty-seven (46·5%) evolved to mechanical ventilation. There were 61 events considered obstetric complications, with 8 stillbirths/fetal losses. The overall lethality was 15·8%. Pregnancy interruption, need for non-invasive mechanical ventilation, level of oxygen support at admission, prone maneuver, hemodialysis, and healthcare-related infections were factors associated with death. Evaluating the WHO 7-category ordinary scale, there was a trend of increase in the risk of death with higher punctuation, with a statistically significant difference of women with 5 (OR = 7·27; 95% IC = 1·17-194; p = 0·031) or 6 points (OR = 12·0; 95% IC = 1·15-391; p = 0·038) when compared to the ones with 3 points, i.e., of women admitted with a high-flow non-rebreathing mask or invasive mechanical ventilation, compared with the ones admitted at room air, respectively. The main limitations of this study are the relatively small number of participants, and the use of data derived of medical records-which are susceptible to misclassification and variable amounts of missing data.

Conclusions: Pregnant and postpartum women with severe Covid-19 have high lethality and a high incidence of clinical and obstetric complications. These findings support that this population should be prioritized in public health strategies that address Covid-19.

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2024-01184

Sudden Shift to Telehealth in COVID-19: A Retrospective Cohort Study of Disparities in Use of Telehealth for Prenatal Care in a Large Midwifery Service. Smith DC, Thumm EB, Anderson J (2024), Journal of Midwifery & Women's Health vol 69, no 4, July/August 2024, pp 522-530

Introduction

The coronavirus disease 2019 (COVID-19) pandemic created disruption in health care delivery, including a sudden transition to telehealth use in mid-March 2020. The purpose of this study was to examine changes in the mode of prenatal care visits and predictors of telehealth use (provider-patient messaging, telephone visits, and video visits) during the COVID-19 pandemic among those receiving care in a large, academic nurse-midwifery service.

Methods

We conducted a retrospective cohort study of those enrolled for prenatal care in 2 nurse-midwifery clinics between 2019 and 2021 (n = 3172). Use outcomes included number and type of encounter: in-person and telehealth (primary outcome). Comparisons were made in frequency and types of encounters before and during COVID-19. A negative binomial regression was fit on the outcome of telehealth encounter count, with race/ethnicity, age, language, parity, hypertension, diabetes, and depression as predictors.

Results

When comparing pre–COVID-19 (before March 2020) with during COVID-19 (after March 2020), overall encounters increased from 15.9 to 19.5 mean number of encounters per person ($P < .001$). The increase was driven by telehealth encounters; there were no significant differences for in-person prenatal visit counts before and during the pandemic period. Direct patient-provider messaging was the most common type of telehealth encounter. Predictors of telehealth encounters included English as primary language and diagnoses of diabetes or depression.

Discussion

No differences in the frequency of in-person prenatal care visits suggests that telehealth encounters led to more contact with midwives and did not replace in-person encounters. Spanish-speaking patients were least likely to use telehealth-delivered prenatal care during the pandemic; a small, but significant, proportion of patients had no or few telehealth encounters, and a significant proportion had high use of telehealth. Integration of telehealth in future delivery of prenatal care should consider questions of equity, patient and provider satisfaction, access, redundancies, and provider workload. (Author)

2024-00925

Efficacy and safety of hydroxychloroquine for treatment of mild SARS-CoV-2 infection and prevention of COVID-19 severity in pregnant and postpartum women: A randomized, double-blind, placebo-controlled trial. González R, Goncé A, del Mar Gil M, et al (2024), Acta Obstetricia et Gynecologica Scandinavica vol 103, no 3, March 2024, pp 602-610

Introduction

Pregnant women have an increased risk of severe COVID-19. Evaluation of drugs with a safety reproductive toxicity profile is a priority. At the beginning of the pandemic, hydroxychloroquine (HCQ) was recommended for COVID-19 treatment.

Material and methods

A randomized, double-blind, placebo-controlled clinical trial was conducted in eight teaching hospitals in Spain to evaluate the safety and efficacy of HCQ in reducing viral shedding and preventing COVID-19 progression. Pregnant and postpartum women with a positive SARS-CoV-2 PCR (with or without mild COVID-19 signs/symptoms) and a normal electrocardiogram were randomized to receive either HCQ orally (400 mg/day for 3 days and 200 mg/day for 11 days) or placebo. PCR and electrocardiogram were repeated at day 21 after treatment start. Enrollment was stopped before reaching the target sample due to low recruitment rate. Trial registration EudraCT #: 2020-001587-29, on April 2, 2020. Clinical trials.gov # NCT04410562, registered on June 1, 2020.

Results

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A total of 116 women (75 pregnant and 41 post-partum) were enrolled from May 2020 to June 2021. The proportion of women with a positive SARS-CoV-2 PCR at day 21 was lower in the HCQ group (21.8%, 12/55) than in the placebo group (31.6%, 18/57), although the difference was not statistically significant (P = 0.499). No differences were observed in COVID-19 progression, adverse events, median change in QTc, hospital admissions, preeclampsia or poor pregnancy and perinatal outcomes between groups.

Conclusions

HCQ was found to be safe in pregnant and postpartum women with asymptomatic or mild SARS-CoV-2 infection. Although the prevalence of infection was decreased in the HCQ group, the statistical power was insufficient to confirm the potential beneficial effect of HCQ for COVID-19 treatment. (Author)

Full URL: https://doi.org/10.1111/aogs.14745

2024-00912

COVID-19 and the adequacy of antenatal care among Indigenous women: A retrospective crossover analysis.

Aguilar-Rodríguez MA, Castro-Porras LV (2024), Birth vol 51, no 2, June 2024, pp 432-440

Background

Often marginalized and disadvantaged by systems of oppression, Indigenous populations commonly face significant barriers to accessing adequate antenatal care (ANC). The COVID-19 pandemic had an unprecedented impact on healthcare systems worldwide, including on the provision of antenatal care; this was especially so for Indigenous communities in many regions. As such, our study aimed to estimate the association between the COVID-19 pandemic and adequate ANC received by Indigenous women in Chiapas, Mexico.

Methods

We conducted a retrospective crossover analysis with data collected between June and December 2021 from Indigenous women who attended at least one ANC appointment at one of two health centers in San Cristóbal de las Casas, Chiapas. We used a multinomial logistic regression model considering the time frame (before and during the pandemic) as the primary independent variable. Adequate antenatal care comprised four dimensions: attendance by qualified personnel, timely first visit, sufficient frequency of visits, and adequacy of the content provided during the visits.

Results

During the COVID-19 pandemic, there was a significant drop in ANC adequacy, with 12.7% (95% CI: 8.3, 18.9) of Indigenous women receiving ANC, compared with the pre-pandemic rate of 52.5% (95% CI: 44.7, 60.3), among the 158 participants. The pandemic resulted in a reduction of 75.8% in the adequacy of ANC. Considering the four dimensions of adequacy, we found that having only one dimension was associated with a relative risk ratio (RRR) of 12.45 (95% CI: 6.40, 24.23), while having two or three dimensions was associated with a RRR of 5.23 (95% CI: 2.83, 9.65) when using adequate ANC as the category of reference.

Conclusions

According to our results, Indigenous women's ANC adequacy was negatively affected by the COVID-19 pandemic. In light of these findings, we emphasize the importance of developing healthcare systems that are prepared to adapt consultation schemes by implementing virtual visits and incorporating community health workers. (Author)

Full URL: https://doi.org/10.1111/birt.12799

2024-00901

Prenatal and postpartum care during the COVID-19 pandemic: An increase in barriers from early to mid-pandemic in the United States. Diamond-Smith N, Logan R, Adler A, et al (2024), Birth vol 51, no 2, June 2024, pp 450-458

Background

The COVID-19 pandemic led to changes in the provision of pregnancy and postpartum care. The purpose of this study

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was to describe changes in access to prenatal and postpartum care over time, from early in the pandemic (July 2020) to mid-pandemic (January 2021) and to explore socioeconomic and COVID-19-related economic factors associated with experiencing barriers to care.

Methods
We recruited two cross sections of women and birthing people in the US in July 2020 (N = 4645) and January 2021 (N = 3343) using Facebook and Instagram Ads.

Results
Three out of four women in the prenatal period and four out of five women in the postpartum period reported barriers to scheduling a visit. The likelihood of not having a visit (OR = 4.44, 95% CI 2.67–7.40), being unable to schedule a visit (OR = 2.73, 95% CI 1.71–4.35), and not being offered visits (OR = 4.26, 95% CI 2.32–7.81) increased over time. Participants were more likely to report barriers attending scheduled prenatal or postpartum appointments over time (OR = 2.72, 95% CI 2.14–3.45). Women who experienced more economic impacts from COVID-19 were older, less educated, and were Black, Indigenous, or a person of color, and were more likely to have barriers to attending appointments.

Conclusions
Certain subgroups are more at risk during COVID-19, and around 9 months into the pandemic, women were not only still facing barriers to care, but these had been amplified. Additional research using other data sources is needed to identify and ameliorate barriers and inequalities in access to prenatal and postpartum care that appear to have persisted throughout the pandemic. (Author)
Full URL: https://doi.org/10.1111/birt.12800

2024-00751

SARS-CoV-2—Placental effects and association with stillbirth. Merriel A, Fitzgerald B, O'Donoghue K (2024), BJOG: An International Journal of Obstetrics and Gynaecology vol 131, no 4, March 2024, pp 385-400

SARS-CoV-2 has had a significant impact on pregnancy outcomes due to the effects of the virus and the altered healthcare environment. Stillbirth has been relatively hidden during the COVID-19 pandemic, but a clear link between SARS-CoV-2 and poor fetal outcome emerged in the Alpha and Delta waves. A small minority of women/birthing people who contracted COVID-19 developed SARS-CoV-2 placentitis. In many reported cases this was linked to intrauterine fetal death, although there are cases of delivery just before imminent fetal demise and we shall discuss how some cases are sub-clinical. What is surprising, is that SARS-CoV-2 placentitis is often not associated with severe maternal COVID-19 infection and this makes it difficult to predict. The worst outcomes seem to be with diffuse placental disease which occurs within 21 days of COVID-19 diagnosis. Poor outcomes are often pre-dated by reduced fetal movements but are not associated with ultrasound changes. In some cases, there has also been maternal thrombocytopenia, or coagulation abnormalities, which may provide a clue as to which pregnancies are at risk of fetal demise if a further variant of concern is to emerge. In future, multidisciplinary collaboration and cross-boundary working must be prioritised, to identify quickly such a phenomenon and provide clinicians with clear guidance for reducing fetal death and associated poor outcomes. While we wait to see if COVID-19 brings a future variant of concern, we must focus on appropriate future management of women who have had SARS-CoV-2 placentitis. As a placental condition with an infectious aetiology, SARS-CoV-placentitis is unlikely to recur in a subsequent pregnancy and thus a measured approach to subsequent pregnancy management is needed. (Author)
Full URL: https://doi.org/10.1111/1471-0528.17698

2024-00637

Effect of the COVID-19 Pandemic on Stillbirths in Canada and the United States. Joseph KS, Lisonkova S, Simon S, et al (2024), JOGC [Journal of Obstetrics and Gynaecology Canada] vol 46, no 4, April 2024, 102338

Objective

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There is uncertainty regarding the effect of the COVID-19 pandemic on population rates of stillbirth. We quantified pandemic-associated changes in stillbirth rates in Canada and the United States.
Methods
We carried out a retrospective study that included all live births and stillbirths in Canada and the United States from 2015 to 2020. The primary analysis was based on all stillbirths and live births at ≥20 weeks gestation. Stillbirth rates were analyzed by month, with March 2020 considered to be the month of pandemic onset. Interrupted time series analyses were used to determine pandemic effects.
Results
The study population included 18,475 stillbirths and 2,244,240 live births in Canada and 134,883 stillbirths and 22,963,356 live births in the United States (8.2 and 5.8 stillbirths per 1,000 total births, respectively). In Canada, pandemic onset was associated with an increase in stillbirths at ≥20 weeks gestation of 1.01 (95% confidence interval [CI] 0.56-1.46) per 1,000 total births and an increase in stillbirths at ≥28 weeks gestation of 0.35 (95% CI 0.16-0.54) per 1,000 total births. In the United States, pandemic onset was associated with an increase in stillbirths at ≥20 weeks gestation of 0.48 (95% CI 0.22-0.75) per 1,000 total births and an increase in stillbirths at ≥28 weeks gestation of 0.22 (95% CI 0.12-0.32) per 1,000 total births. The increase in stillbirths at pandemic onset returned to pre-pandemic levels in subsequent months.
Conclusion
The COVID-19 pandemic's onset was associated with a transitory increase in stillbirth rates in Canada and the United States. (Author)
Full URL: https://doi.org/10.1016/j.jogc.2023.102338

2024-00503

The impact of covid-19 pandemic on pregnancy outcome. Gholami R, Borumandnia N, Kalhori E, et al (2023), BMC Pregnancy and Childbirth vol 23, no 811, November 2023

Background
The acute respiratory disease caused by the coronavirus (COVID-19) has spread rapidly worldwide yet has not been eliminated. The infection is especially deadly in vulnerable populations. The current studies indicate that pregnant women are at greater risk of getting seriously ill. Even though fetuses protect against disease, the additional finding showed that the COVID-19 pandemic could increase fetal and maternal morbidities. In a situation where COVID-19 and new strains of the virus are still not controlled, scientists predicted that the world might experience another pandemic. Consequently, more research about the effects of COVID-19 infection on pregnancy outcomes is needed. This study aimed to compare the pregnancy outcomes of Iranian pregnant women in the first year of the pandemic with the previous year.

Methods
This prospective cross-sectional study was performed to compare the pregnancy outcome during the COVID-19 pandemic among Iranian pregnant women who gave birth during the pandemic and one year before the pandemic (2019–2020 and 2020–2021). The sample size was 2,371,332 births registered at hospitals and birth centers platforms. The studied variables include stillbirth, congenital anomaly, birth weight, preeclampsia, gestational diabetes, cesarean section, ICU admission, mean of the gestational age at birth, preterm births, NICU admission, neonatal mortality and the percentage of deliveries with at least one complication such as blood transfusion and postpartum ICU admission. Analyzing data was done by using SPSS version 25 software.

Results
We found statistical differences between pregnancy and birth outcomes during the COVID-19 pandemic compared to one year before. The risk of preeclampsia, gestational diabetes, cesarean section, preterm birth and NICU admission were clinically significant. Also, there was a significant decrease in mean gestational age.

Conclusion
The COVID-19 pandemic has affected the pregnancy outcome by increasing morbidities and complications during

pregnancy, birth, and postpartum. In addition, extensive quarantine outbreaks disrupted the healthcare system and hindered access to prenatal services. It is necessary to develop preventive and therapeutic care protocols for similar pandemic conditions. (Author)
Full URL: https://doi.org/10.1186/s12884-023-06098-z

2024-00276

Associations of SARS-CoV-2 antibodies with birth outcomes: Results from three urban birth cohorts in the NIH environmental influences on child health outcomes program. Trasande L, Comstock SS, Herbstman JB, et al (2023), PLoS ONE vol 18, no 11, November 2023, e0293652

Studies suggest perinatal infection with SARS-CoV-2 can induce adverse birth outcomes, but studies published to date have substantial limitations. We therefore conducted an observational study of 211 births occurring between January 2020-September 2021 in three urban cohorts participating in the Environmental Influences on Child Health Outcomes Program. Serology was assessed for IgG, IgM and IgA antibodies to nucleocapsid, S1 spike, S2 spike, and receptor-binding domain. There were no differences in gestational age (GA), birth weight, preterm birth (PTB) or low birth weight (LBW) among seropositive mothers. However, the few (n = 9) IgM seropositive mothers had children with lower BW (434g, 95% CI: 116-752), BW Z score-for-GA (0.73 SD, 95% CI 0.10-1.36) and were more likely to deliver preterm (OR 8.75, 95% CI 1.22-62.4). Though there are limits to interpretation, the data support efforts to prevent SARS-CoV-2 infections in pregnancy.

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Full URL: https://doi.org/10.1371/journal.pone.0293652

2024-00234

Iron, folic acid, and vitamin D supplementation during pregnancy: Did pregnant Chilean women meet the recommendations during the COVID pandemic?. Mujica-Coopman MF, Garmendia ML, Corvalán C (2023), PLoS ONE vol 18, no 11, November 2023, e0293745

Background: Antenatal micronutrient supplementation has been defined as a priority for Low-and Middle-income Countries (LMICs). However, it is also relevant to assess its performance in middle-high income countries, such as Chile, particularly given the post-pandemic food insecurity context.

Aim: To assess the use (frequency and doses) of daily recommended supplementation (iron (15-30 mg), folic acid (FA) (400-800 µg/day), and vitamin (VD) (400 IU)) in a sample of Chilean pregnant women.

Methods: In 1, 507 pregnant women selected from public health care registries of the Southeast area of Santiago-Chile, we collected maternal, supplement use, sociodemographic, and nutritional information at the first (<15 weeks), second (24-28 weeks), and third trimesters (32-36 weeks) of gestation by using a researcher administer online questionnaire.

Results: The median (IQR) age of women was 29 (25-33) years. Pre-conceptional supplementation was rare (24%), but it reached >93% in the first trimester; thereafter supplement use decreased to 79% in the second and 84% in the third trimesters, particularly in women with lower income ($p<0.05$), lower education ($p<0.05$), and with excess weight ($p<0.05$). Use of iron supplements in the first trimester was rare (<21%) as well as the use of VD supplements across pregnancy (<31%). Most FA (70%) and iron (80%) supplement users, exceeded the recommended daily dose while ~40% of VD users took less than the recommended dose.

Conclusions: In this sample of Chilean women, timely initiation of FA, iron, and VD supplementation was low and doses were not aligned with the recommendations. Strengthening adherence and quality of micronutrient

supplementation programs delivered through public primary care could benefit particularly the most vulnerable women.

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Full URL: https://doi.org/10.1371/journal.pone.0293745

2024-00212

Placental SARS-CoV-2 viral replication is associated with placental coagulopathy and neonatal complications. Tiozzo C, Manzano C, Lin X, et al (2024), American Journal of Obstetrics & Gynecology (AJOG) vol 230, no 4, April 2024, pp e33-e37

This research correspondence details a study that collected placentas after birth, and conducted 2 placental biopsies from distinct locations for each case. This study aimed to assess the potential association between SARS-CoV-2 viral replication in the placenta and coagulopathy in both the placenta and neonates. (JM2)

Full URL: https://doi.org/10.1016/j.ajog.2023.11.1222

2024-00003

Impact of COVID-19 and Vaccination During Pregnancy on Placenta-Mediated Complications (COVIGRO Study). Ghesquiere L, Boivin G, Demuth B, et al (2024), JOGC [Journal of Obstetrics and Gynaecology Canada] vol 46, no 4, April 2024, 102291

Objectives

COVID-19 has been associated with preterm birth (PTB) and placental-mediated complications, including fetal growth restriction and preeclampsia (PE). This study aimed to estimate the impact of COVID-19 and vaccination on adverse pregnancy outcomes and markers of placental function.

Methods

We performed a study on a prospective cohort of women recruited in the first trimester of pregnancy during the early COVID-19 pandemic period (December 2020 to December 2021). At each trimester of pregnancy, the assessment included a questionnaire on COVID-19 and vaccination status; serological tests for COVID-19 (for asymptomatic infection); measurement of placental growth factor (PlGF) and soluble fms-like tyrosine kinase 1 (sFlt-1) in maternal blood; measurement of mean uterine artery pulsatility index (UtA-PI); and pregnancy outcomes (PTB, PE, birth weight below the fifth and the tenth percentile).

Results

Among 788 patients with complete data, we observed 101 (13%) cases of symptomatic infection and 74 (9%) cases of asymptomatic infection with SARS-CoV-2. Most cases (73%) of infection were among women with previous vaccination or COVID-19 infection before pregnancy. COVID-19 infection was not associated with adverse pregnancy outcomes, abnormal fetal growth, sFlt-1/PlGF ratio, or mean UtA-PI. Vaccination during pregnancy did not influence these outcomes either. We observed no case of severe COVID-19 infection requiring respiratory support.

Conclusion

Mild symptomatic or asymptomatic COVID-19 during pregnancy did not influence the risk of adverse pregnancy outcomes and the markers of placental function in predominantly vaccinated women. Fetal growth monitoring is unlikely to be mandatory in women with mild symptoms of COVID-19. (Author)

2023-13670

Pre-Delta, Delta, and Omicron Periods of the Coronavirus Disease 2019 (COVID-19) Pandemic and Health Outcomes During Delivery Hospitalization. Carlson J, Simeone RM, Ellington S, et al (2024), Obstetrics & Gynecology vol 143, no 1, January 2024, pp 131-138

OBJECTIVE:

To examine the relationship between coronavirus disease 2019 (COVID-19) diagnosis at delivery and adverse maternal health and pregnancy outcomes during pre-Delta, Delta, and Omicron variant predominance, with a focus on the time

period of Omicron variant predominance.

METHODS:
We conducted a cross-sectional observational study with data from delivery hospitalizations in the Premier Healthcare Database from February 2020 to August 2023. The pre-Delta (February 2020–June 2021), Delta (July 2021–December 2021), and Omicron (January 2022–August 2023) periods of variant predominance were examined. Exposure to COVID-19 was identified by having a diagnostic code for COVID-19 during the delivery hospitalization. Adjusted prevalence ratios (aPRs) were calculated to compare the risks of adverse maternal and pregnancy outcomes for women with and without COVID-19 diagnoses at the time of delivery for each variant period.

RESULTS:
Among 2,990,973 women with delivery hospitalizations, 1.9% (n=56,618) had COVID-19 diagnoses noted at delivery admission discharge, including 26,053 during the Omicron period. Across all variant time periods, the prevalence of many adverse maternal and pregnancy outcomes during the delivery hospitalization was significantly higher for pregnant women with COVID-19 compared with pregnant women without COVID-19. In adjusted models, COVID-19 during the Omicron period was associated with significant increased risks for maternal sepsis (COVID-19: 0.4% vs no COVID-19: 0.1%; aPR 3.32, 95% CI, 2.70–4.08), acute respiratory distress syndrome (0.6% vs 0.1%; aPR 6.19, 95% CI, 5.26–7.29), shock (0.2% vs 0.1%; aPR 2.14, 95% CI, 1.62–2.84), renal failure (0.5% vs 0.2%; aPR 2.08, 95% CI, 1.73–2.49), intensive care unit admission (2.7% vs 1.7%; aPR 1.64, 95% CI, 1.52–1.77), mechanical ventilation (0.3% vs 0.1%; aPR 3.15, 95% CI, 2.52–3.93), in-hospital death (0.03% vs 0.01%; aPR 5.00, 95% CI, 2.30–10.90), stillbirth (0.7% vs 0.6%; aPR 1.17, 95% CI, 1.01–1.36), and preterm delivery (12.3% vs 9.6%; aPR 1.28, 95% CI, 1.24–1.33).

CONCLUSION:
Despite the possibility of some level of immunity due to previous severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection, vaccination, or testing differences, risks of adverse outcomes associated with COVID-19 diagnosis at delivery remained elevated during the Omicron variant time period. (Author)

2023-13667

Extracorporeal Membrane Oxygenation in Pregnant and Postpartum Women With Critical Coronavirus Disease 2019 (COVID-19) Acute Respiratory Distress Syndrome A Systematic Review and Meta-analysis. Shamshirsaz AA, Byrne JJ, Ramsey PS, et al (2024), Obstetrics & Gynecology vol 143, no 2, February 2024, pp 219-228

OBJECTIVE:
To estimate the maternal survival and live-birth rates in pregnant women with acute respiratory distress syndrome (ARDS) secondary to critical coronavirus disease 2019 (COVID-19) who are treated with extracorporeal membrane oxygenation (ECMO) by performing a systematic review and meta-analysis.

DATA SOURCES:
From database inception through August 2023, we explored MEDLINE, Web of Science, EMBASE, CINAHL, ClinicalTrials.gov, and Cochrane Central Register of Controlled Trials. Studies reporting maternal survival and live-birth rates in pregnant women with critical COVID-19 undergoing ECMO were included.

METHODS OF STUDY SELECTION:
Two reviewers separately ascertained studies, obtained data, and evaluated study quality. Summary estimates of maternal survival and live-birth rates were measured, and 95% CIs were calculated.

TABULATION, INTEGRATION, AND RESULTS:
Nine retrospective case series and 12 retrospective cohort studies were identified with 386 pregnant women with critical COVID-19 who underwent ECMO. Studies evaluated women that were treated from January 2020 to October 2022. Four studies were from the United States; three were from Turkey; two were from France; two were from Israel; and one each was from Columbia, Germany, Italy, Kuwait, Poland, Republic of Srpska, the United Arab Emirates, the

United Kingdom, a consortium from Belgium, France, Switzerland, and an international registry. The pooled estimate of the maternal survival rate among pregnant patients who were initiated on ECMO was 75.6% (95% CI, 66.0–84.1%, I2=72%). The pooled estimate of the live-birth rate among pregnant patients who were initiated on ECMO was 83.7% (95% CI, 76.8-89.6%, 153 neonates, I2=11%). When the case series and cohort studies were examined separately, the results were similar.

CONCLUSION:
Among pregnant women with acute respiratory distress syndrome attributable to critical COVID-19 who were managed with ECMO, maternal survival and live-birth rates were high.

SYSTEMATIC REVIEW REGISTRATION:
PROSPERO, CRD42023442800. (Author)

2023-13665

Oral Nirmatrelvir–Ritonavir Use and Clinical Outcomes in Pregnant Patients With Coronavirus Disease 2019 (COVID-19). Toure BB, Panakam A, Johns SL, et al (2024), Obstetrics & Gynecology vol 143, no 2, February 2024, pp 273-276

We conducted a retrospective cohort study of pregnant patients who tested positive for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection by RNA polymerase chain reaction test or home test who were counseled about taking nirmatrelvir–ritonavir if they were within 5 days of symptom onset. Obstetric and coronavirus disease 2019 (COVID-19) outcomes were compared between patients who did and did not take the medication. Overall, 114 individuals took nirmatrelvir–ritonavir and 323 did not. The cohorts were comparable, including high rates of vaccination in both groups. Nirmatrelvir–ritonavir was well-tolerated, with no patients discontinuing medication due to side effects. There were no intensive care unit admissions in either group. Most obstetric and medical outcomes were similar between those taking and not taking nirmatrelvir–ritonavir. Patients taking nirmatrelvir–ritonavir had significantly higher rates of surgical site infection (3 [2.7%] vs 0 [0%], P=.02) and preeclampsia (11 [9.6%] vs 12 [3.7%], P=.02). Outcome event numbers were too small for multivariable modeling. These preliminary data may be reassuring to clinicians and patients who would like to use nirmatrelvir–ritonavir in pregnancy. (Author)

Full URL: https://doi.org/10.1097/AOG.0000000000005471

2023-13386

Breastfeeding success and perceived social support in lactating women with a history of COVID 19 infection: a prospective cohort study. Moini A, Heidari F, Eftekhariyazdi M, et al (2023), International Breastfeeding Journal vol 18, no 65, December 2023

Background
Given the limited availability of research on the association between COVID-19 infection and breastfeeding success, the primary objective of this study is to conduct a comprehensive evaluation of this relationship.

Methods
This prospective cohort study included 260 women who were on the postnatal ward of an academic hospital affiliated with Tehran University of Medical Sciences during the COVID-19 pandemic (between March and August 2021). Among these women, 130 had tested positive for COVID-19 in pregnancy, while the remaining 130 were considered healthy. The study aimed to assess various factors, including sociodemographic characteristics and the results of four validated questionnaires: The Bristol Breastfeeding Questionnaire, The Multidimensional of Perceived Social Support (MPSS), The Breastfeeding Self-Efficacy Scale (BSES), and The Postpartum Partner Support Scale (PPSS). These questionnaires were administered to each participant to gather relevant data. After eight weeks, a telephone follow-up was carried out to assess the success of breastfeeding. The evaluation focused on determining if exclusive breastfeeding was maintained or not. Data was collected by questioning mothers about their infants' feeding habits in the past 24 h. Exclusive breastfeeding refers to the exclusive use of breast milk without the introduction of other liquids or solid

foods.

Results
Women with a previous COVID-19 infection (case group) had a lower mean infant gestational age (P < 0.001) and a higher prevalence of cesarean section (P = 0.001) compared to the control group. The proportion of women who exclusively breastfed was higher in the control group (98.5%) than in women with a history of COVID-19 infection (89.2%) (P = 0.011). Furthermore, the case group reported lower scores in perceived social support and the Breastfeeding Self-Efficacy Scale, in contrast to the control group. Notably, there was a significant correlation between breastfeeding success and women's breastfeeding self-efficacy score.

Conclusions
The findings of this study offer valuable insights for healthcare professionals, enabling them to promote early initiation of breastfeeding in mothers with a history of COVID-19 infection, while ensuring necessary precautions are taken. (Author)

Full URL: https://doi.org/10.1186/s13006-023-00601-0

2023-13311

A structural equation model analysis of the relationship between expectant fathers' fear of COVID-19 and their fear of childbirth: The mediating role of maternal fear of childbirth. Mortazavi F, Nikbakht R, Mehrabadi M, et al (2023), Midwifery vol 125, October 2023, 103790

Background
Pregnancy and childbirth may provoke various emotional responses in expectant fathers including excessive fear of childbirth. It is not unreasonable to assume that fear of contracting the virus during the COVID-19 pandemic, may have intensified fathers' fear of childbirth. This study aims to determine the mediating role of the expectant mothers' fear of childbirth in the relationship between expectant fathers' fear of COVID-19 and their fear of childbirth.

Methods
This cross-sectional study was conducted on 270 pregnant women and their spouses attending health centers from Aug 2021 to April 2022. Fathers' fear of childbirth scale (FFCS), Wijma Delivery Expectancy/Experience Questionnaire (W-DEQ-A), and Fear of COVID-19 Scale (FCV-19S) were used to collect data. To examine the relationships between variables and to develop the final model, we used the structural equation model (SEM).

Results
The prevalence of severe fear of childbirth in fathers and their female spouses were 40.9% and 22.4%, respectively. The mean score and standard deviation of fear of childbirth in the fathers and their female spouses were 49.2 ± 17.1 and 62.5 ± 29.4, respectively. Results showed that fathers' fear of COVID-19 was directly (B = 0.44, p = 0.004) and indirectly (B = 0.13, p = 0.015) associated with fathers' fear of childbirth. Also, women's fear of childbirth was positively associated with fathers' fear of childbirth (B = 0.45, p = 0.030). In the final model, the values of $\chi 2/df$, CFI, PCFI, RMSEA, and SRMR were equal to 2.32, 0.94, 0.76, 0.07, and 0.06, respectively.

Conclusions
We found a high prevalence of severe fear of childbirth in Iranian expectant fathers which means that fathers' fear of childbirth is a national health concern that needs to be addressed. The findings of the present study indicate that mothers' fear of childbirth has a mediating role in the relationship between fathers' fear of COVID and fear of childbirth. Therefore, to alleviate fathers' fear of childbirth, interventions to reduce fathers' fear of COVID-19 and women's fear of childbirth should be developed and implemented. The impact of fathers' mental health on the fear of childbirth in expectant couples should be further investigated. (Author)

2023-13260

Social Determinants and Perinatal Hardships During the COVID-19 Pandemic. Eliason EL, Agostino J, MacDougall H (2024), Journal of Women's Health vol 33, no 3, March 2024, pp 371–378

Background: This study examined perinatal experiences of pandemic-related hardships and disparities by race/ethnicity, income, insurance type at childbirth, and urban/rural residency.

Materials and Methods: We used cross-sectional survey data from the 2020 Pregnancy Risk Assessment Monitoring System COVID-19 supplement in 26 states, the District of Columbia, and New York City to explore: (1) job loss or cut work hours/pay, (2) having to move/relocate or becoming homeless, (3) problems paying the rent, mortgage, or bills, or (4) worries that food would run out. We estimated the prevalence of outcomes overall and by race/ethnicity, income, insurance, and urban/rural residency. We used weighted multivariable logistic regression models to calculate adjusted predicted probabilities.

Results: Due to the COVID-19 pandemic, 31.9% of respondents reported losing their job or having a cut in work hours or pay, 11.2% of respondents had to move/relocate or became homeless, 21.8% had problems paying the rent, mortgage, or bills, and 16.86% reported worries that food would run out. Compared to overall, rates of all hardships were higher among respondents who were non-Hispanic Black, Hispanic, uninsured, or Medicaid insured. The adjusted predicted probability of employment instability, financial hardships, and food insecurity was significantly higher among non-Hispanic Black respondents and respondents who were uninsured. The adjusted predicted probability of all hardships was significantly higher among respondents with Medicaid.

Conclusions: Black, Medicaid-insured, and uninsured respondents were particularly vulnerable to perinatal hardships during COVID-19. Our results suggest a need to alleviate the overall and disparate consequences of hardships for individuals who gave birth during the COVID-19 pandemic. (Author)

2023-13233

Doubts about the COVID-19 vaccine against pregnancy: public trust and government issues in Indonesia. Saputra R, Lidyawati Y, Suhardita K, et al (2023), Journal of Public Health vol 45, no 4, December 2023, pp e832–e833

In response to an article on the topic of administering vaccines to children in the Philippines. The topic of this vaccine has also been discussed in Indonesia, but now we will discuss it related to pregnancy. The controversy surrounding the coronavirus disease 2019 (COVID-19) vaccine is whether to believe in it or be forced by the government to take it. Some people are hesitant to take vaccines, as shown by a survey conducted by Populi Center in December 2020, which found that 40% of Indonesians do not want to receive vaccines from the government. However, Amnesty International Indonesia researcher, Ari Pramuditya stated that everyone has the right to give consent without coercion in the vaccination program, and the government must strive for a voluntary vaccination process. This effort is very interesting because it talks about a person's psychology. In this case, the psychological factor is closely related to the health of pregnant women. The COVID-19 pandemic continues to affect the worldwide community, and efforts in vaccination are very important in curbing its spread. However, still, there are several doubts about vaccines among pregnant people, because of worries about potency effects and bad results in pregnancy and the development of the fetus. To overcome the problem, it is important to note that the American College of Obstetricians and Gynecologists and the Society for Maternal-Fetal Medicine recommend that individuals pregnant and breastfeeding offer COVID-19 vaccination. (Author)

2023-13231

Does SARS Cov-2 infection affect the IVF outcome – A systematic review and meta-analysis. Kaur H, Chauhan A, Mascarenhas M (2024), European Journal of Obstetrics & Gynecology and Reproductive Biology vol 292, January 2024, pp 147-157

Study Question: What is the effect of SARS Cov-2 on IVF outcome?

Summary answer: Mild or asymptomatic Covid-19 infection does not appear to affect clinical or ongoing pregnancy rate after IVF.

What is already known: Covid-19 has been shown to affect female and male fertility and reproductive function.

Studies have shown variable results regarding impact of Covid-19 on IVF outcome with few reporting impaired ovarian reserve, oocyte and embryo quality, semen parameters, clinical pregnancy rate (CPR) and live birth rate (LBR) while others reported no effect on IVF outcome.

Study Design, size, duration

An electronic database search of PubMed, EMBASE, SCOPUS, WHO Covid-19 database, Clinical trials.gov and Cochrane Central was performed for articles published in English language between 1st January 2020 and 15th October 2022 by two independent reviewers using predefined eligibility criteria We have included observational studies both prospective and retrospective, cohort studies, and case control studies and excluded narrative reviews, case studies, cost-effectiveness studies or diagnostic studies. Risk of bias was assessed using NOS and quality of evidence was graded by GRADE pro.

Participants, Settings, Methods

Studies comparing women undergoing IVF and comparing Covid-19 affected with those unaffected by Covid-19 were included. Also, studies comparing immune group (infected or vaccinated) in the study group and unaffected as controls (historical controls, IVF cycles done prior to Covid-19 outbreak but matched with study group) were included. Those with no comparison group or published in language other than English language or duplicate studies were excluded.

Main Results and Role of chance

We identified 5046 records and after full text screening of 82 studies, 12 studies were selected for final review. For the clinical pregnancy rate, there was no difference in the CPR in covid recovered or control patients (OR 0.90, 95 % CI = 0.67 to1.21; I2 = 29 %). Similarly, there was no significant effect on implantation rate (RR 0.92, 95 % CI = 0.68 to1.23; I2 = 31 %) and ongoing pregnancy rate (RR 0.96, 95 % CI = 0.79 to 1.15;I2 = 21 %). The mean number of the oocyte retrieved per patient was not significantly different in both the groups (mean difference 0.52, 95 % CI = -1.45 to 2.49; I2 = 75 %). The certainty of the evidence was low.

Limitations: The meta-analysis is based on observational studies each involving small number of participants. Few studies reported outcomes as per patient while others reported as per cycle, for uniformity we have reported outcomes as per cycle. Sample size in most of studies was small.

Wider Implications of findings: This systematic review has not shown any significant effect on the outcome of IVF cycles in patients post Covid-19 recovery compared to controls. But given the sample size, the findings should be considered with caution.

Registration: The review protocol has been registered on PROSPERO (registration number CRD42022314515) (Author)

2023-13067

Comparison of Anti-SARS-CoV-2-Specific Antibody Signatures in Maternal and Infant Blood after COVID-19 Infection versus COVID-19 Vaccination during Pregnancy. Sabharwal V, Taglauer E, Demos R, et al (2023), American Journal of Perinatology 31 October 2023, online

Objective The Advisory Committee on Immunization Practices and The American College of Obstetricians and Gynecologists recommend coronavirus disease 2019 (COVID-19) vaccine for pregnant persons to prevent severe illness and death. The objective was to examine levels of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) IgG, IgM, and IgA against spike protein receptor binding domain (RBD) and nucleocapsid protein (NCP) in maternal and infant/cord blood at delivery after COVID 19 vaccination compared with SARS-CoV-2 infection at in mother–infant dyads at specified time points.

Study Design Mothers with SARS-CoV-2 infection (n = 31) or COVID-19 vaccination (n = 25) during pregnancy were enrolled between July 2020 and November 2021. Samples were collected at delivery and IgG, IgM, and IgA to RBD of spike and NCPs compared in the infected and vaccinated groups. Timing of infection/vaccination prior to delivery and correlation with antibody levels was performed.

Results The majority of participants received vaccination within 90 days of delivery and over half received the Pfizer BioNTech vaccine. There were no significant correlations between antibody levels and timing of infection or vaccination. Infant IgG levels to the RBD domain of spike protein were higher in the vaccinated group (n = 25) as

compared with the infants born to mothers with infection (n = 31). Vaccination against COVID-19 during pregnancy was associated with detectable maternal and infant anti-RBD IgG levels at delivery irrespective of the timing of vaccination.

Conclusion Timing of vaccination had no correlation to the antibody levels suggesting that the timing of maternal vaccination in the cohort did not matter. There was no IgM detected in infants from vaccinated mothers. Infants from vaccinated mothers had robust IgG titers to RBD, which have a lasting protective effect in infants. (Author)

2023-13063

SARS-CoV-2 infection during pregnancy and perinatal outcomes in Estonia in 2020 and 2021: A register-based study. Veerus P, Nõmm O, Innos K, et al (2024), Acta Obstetricia et Gynecologica Scandinavica vol 103, no 2, February 2024, pp 250-256

Introduction

Data from different countries show partly controversial impact of SARS-CoV-2 infection on pregnancy outcomes. A nationwide register-based study was conducted in Estonia to assess the impact of SARS-CoV-2 infection at any time during pregnancy on stillbirth, perinatal mortality, Apgar score at 5 minutes, cesarean section rates, rates of preterm birth and preeclampsia.

Material and methods

Data on all newborns and their mothers were obtained from the Estonian Medical Birth Registry, and data on SARS-CoV-2 testing dates, test results and vaccination dates against SARS-CoV-2 from the Estonian Health Information System. Altogether, 26 211 births in 2020 and 2021 in Estonia were included. All analyses were performed per newborn. Odds ratios with 95% confidence intervals (CI) were analyzed for all outcomes, adjusted for mother's place of residence, body mass index, age of mother at delivery and hypertension and for all the aforementioned variables together with mother's vaccination status using data from 2021 when vaccinations against SARS-CoV-2 became available. For studying the effect of a positive SARS-CoV-2 test during pregnancy on preeclampsia, hypertension was omitted from the models to avoid overadjustment.

Results

SARS-CoV-2 infection during pregnancy was associated with an increased risk of stillbirth (adjusted odds ratio [aOR] 2.81; 95% CI 1.37–5.74) and perinatal mortality (aOR 2.34; 95% CI 1.20–4.56) but not with a lower Apgar score at 5 minutes, higher risk of cesarean section, preeclampsia or preterm birth. Vaccination slightly decreased the impact of SARS-CoV-2 infection during pregnancy on perinatal mortality.

Conclusions

A positive SARS-CoV-2 test during pregnancy was associated with higher rates of stillbirth and perinatal mortality in Estonia but was not associated with change in preeclampsia, cesarean section or preterm birth rates. (Author)

Full URL: https://doi.org/10.1111/aogs.14721

2023-12965

Provision and utilization of maternal health services during the COVID-19 pandemic in 16 hospitals in sub-Saharan Africa. Semaan A, Annerstedt KS, Beňová L, et al (2023), Frontiers in Global Women's Health 31 October 2023, online

Objective: Maintaining provision and utilization of maternal healthcare services is susceptible to external influences. This study describes how maternity care was provided during the COVID-19 pandemic and assesses patterns of service utilization and perinatal health outcomes in 16 referral hospitals (four each) in Benin, Malawi, Tanzania and Uganda.

Methods: We used an embedded case-study design and two data sources. Responses to open-ended questions in a health-facility assessment survey were analyzed with content analysis. We described categories of adaptations and care provision modalities during the pandemic at the hospital and maternity ward levels. Aggregate monthly service statistics on antenatal care, delivery, caesarean section, maternal deaths, and stillbirths covering 24 months (2019 and

2020; pre-COVID-19 and COVID-19) were examined.

Results: Declines in the number of antenatal care consultations were documented in Tanzania, Malawi, and Uganda in 2020 compared to 2019. Deliveries declined in 2020 compared to 2019 in Tanzania and Uganda. Caesarean section rates decreased in Benin and increased in Tanzania in 2020 compared to 2019. Increases in maternal mortality ratio and stillbirth rate were noted in some months of 2020 in Benin and Uganda, with variability noted between hospitals. At the hospital level, teams were assigned to respond to the COVID-19 pandemic, routine meetings were cancelled, and maternal death reviews and quality improvement initiatives were interrupted. In maternity wards, staff shortages were reported during lockdowns in Uganda. Clinical guidelines and protocols were not updated formally; the number of allowed companions and visitors was reduced.

Conclusion: Varying approaches within and between countries demonstrate the importance of a contextualized response to the COVID-19 pandemic. Maternal care utilization and the ability to provide quality care fluctuated with lockdowns and travel bans. Women's and maternal health workers' needs should be prioritized to avoid interruptions in the continuum of care and prevent the deterioration of perinatal health outcomes. (Author)
Full URL: https://doi.org/10.3389/fgwh.2023.1192473

2023-12684

Assisted reproduction after SARS-CoV-2-infection: results of a single-center cohort-study. Eckstein V, Glass K, Leßmann M-E, et al (2024), Archives of Gynecology and Obstetrics vol 309, no 1, January 2024, pp 305 - 313

Purpose

The effects of SARS-CoV-2 infections on the outcome of assisted reproduction techniques (ART) were studied in a retrospective cohort study.

Methods

The outcome of 1581 treatment cycles with embryo transfer at a university fertility center in Germany was compared in years before and during the COVID-19 pandemic. For 335 treatment cycles in 2022 a detailed analysis was carried out depending on infection and immunization status of both partners.

Results

ART cycles did not differ in most of the parameters examined between 2018–2022. In spite of comparable clinical pregnancy rates, there was a significantly higher miscarriage rate at 34.6% (27/78) in 2022, compared to 19.7% (29/147) in the pre-pandemic years of 2018–2019 (p = 0.014). In 37.0% of the treatment cycles (124/335) 2022 at least one partner reported a SARS-CoV-2-Infection 6 months before ART, mostly with the virus variant Omicron. Clinical pregnancy rates were lower in cycles without infection. Comparing women with confirmed infection to no infection, a significantly higher risk of miscarriage was seen (62.5% vs. 26.2%, p = 0.009). In treatment cycles of partners with basic immunization against SARS-CoV-2 a statistically significant increase of pregnancy rates was seen comparing to cycles with both unvaccinated partners (p = 0.011).

Conclusion

The results indicate a negative impact of SARS-CoV-2-infections up to 6 months on ART treatment, in particular an increased risk of miscarriage. Vaccination was associated with a better outcome of ART treatment. (Author)
Full URL: https://doi.org/10.1007/s00404-023-07228-w

2023-11949

The risk of anxiety and depression among pregnant women during the COVID-19 pandemic in Turkey: A cross-sectional online survey. Keleş NÇ (2023), African Journal of Reproductive Health vol 27, no 4, April 2023, pp 65-72

Studies on perinatal mental health during the COVID-19 pandemic are limited. Maternal anxiety and depression during pregnancy can have negative effects on maternal and child health outcomes. I therefore aimed to determine

the risk of anxiety and depression in pregnant women during the COVID-19 pandemic in Turkey. The data were collected from pregnant women during the COVID19 pandemic between May and July 2020. In total, 164 pregnant women were recruited via social media (Facebook and Instagram) to complete an online survey. A personal information form and the Hospital Anxiety and Depression Scale were used as data collection tools. The data were analyzed using descriptive statistics, the Mann–Whitney U test, and the Kruskal–Wallis H test. I determined that pregnant women were at risk of anxiety (36%) and depression (73.8%) during the COVID-19 pandemic. The risk of depression was higher among the pregnant women who had a postgraduate education, worked during pregnancy, and had migrated within the previous 10 years compared to the other groups, while the risk of anxiety was higher in the age group 26–35 years and among unemployed pregnant women compared to the other groups. The COVID-19 pandemic was associated with a significant risk of anxiety and depression among pregnant women. Reducing the dangerous effects of COVID-19 on mental health is a perinatal health priority. (Author)

2023-11923

Knowledge, attitudes and preventive practices towards COVID-19 among prenatal women in an antenatal clinic in Sakaka City, Aljouf region: A cross-sectional study. AbdRabou MA (2023), African Journal of Reproductive Health vol 27, no 1, January 2023, pp 73-83

It is known that prenatal women with COVID-19 are more liable to severe disease and poor newborn outcomes. Understanding the effects of this pandemic on prenatal women is still not known. Studies have shown that gravid women are more liable to COVID19 infection because of changed physiology and immunological characters. So, this study aimed to investigate gravid women's knowledge, attitudes, and preventive practices to avoid COVID-19 in Sakaka city, Al jouf region, Saudi Arabia. A communitybased cross-sectional study was conducted with 150 gravid women in Sakaka City. The samples were achieved using a simple random sampling technique from February to March, 2022. The data were collected by face-to-face survey with a planned and pretested survey and analyzed by SPSS. The study tool consists of six sections including. The demographics of the prenatal women, knowledge about COVID-19, Participants' attitudes, symptom, practices of prenatal women toward COVID-19. The results showed that the percentage of score of good knowledge before awareness was (34.0%), and the percentage of score of good knowledge after awareness was (73.33%) and the score of practices of prenatal women of good practices before awareness was (33.33%), and the percentage of score of good practices after awareness increased to (91.33%).The percentage of change between score of knowledge and practices of prenatal women before awareness was - 0.67 but percentage of change between score of knowledge and practices of prenatal women after awareness increased to +18%. Although most study members had good knowledge about the preventative measures of COVID-19, they did not practice them, bur their practices increased after awareness. The study recommended that the awareness should be extended to rural areas where access to electronic media is limited. (Author)

2023-11855

Experiences Navigating the Pregnancy Care Continuum During the COVID-19 Pandemic. Jaffe EF, Spach NC, Sullivan KA, et al (2023), Women's Health Issues vol 33, no 3, May-June 2023, pp 235-241

Introduction: The COVID-19 pandemic led to unprecedented changes in care delivery across the pregnancy care continuum. Our primary objective with this research was to characterize the range of ways that the early months of the COVID-19 pandemic affected pregnancy, childbirth, and postpartum care experiences.

Methods: Pregnant and recently pregnant patients (n = 20) from obstetrics and gynecology clinical sites associated with Massachusetts General Hospital were interviewed about their experiences with prenatal care, childbirth, and postpartum care during the first wave of the COVID-19 pandemic. Interview transcripts were analyzed for emergent themes.

Results: This sample included 20 pregnant and postpartum people, including 11 individuals who tested positive for COVID-19 during pregnancy or postpartum and nine with suspected infection. The ways in which COVID-19 or suspected COVID-19 affected experiences of prenatal care, childbirth, and postpartum care were complex and varied.

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Three themes were identified across narratives of pregnancy, birth, and postpartum care: patient perceptions of diminished access to care, stigma due to COVID-19 infection, and limited capacity of providers to honor patient preferences.

Conclusions: A better understanding of pregnant and recently pregnant people's experiences during the early months of the COVID-19 pandemic can inform infection control policies and clinical care delivery practices that are more congruent with the needs and values of pregnant, birthing, and postpartum people as institutions craft responses to future pandemics. Approaches that maximize meaningful access across the pregnancy care continuum, center patients' priorities within adapted care models, and honor patient preferences as much as possible are important aspects of an appropriate response to future waves of COVID-19 and other pandemics.

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2023-11835

Twitter discussions on breastfeeding during the COVID-19 pandemic. Jagarapu J, Diaz MI, Lehmann CU, et al (2023), International Breastfeeding Journal vol 18, no 56, November 2023

Background

Breastfeeding is a critical health intervention in infants. Recent literature reported that the COVID-19 pandemic resulted in significant mental health issues in pregnant and breastfeeding women due to social isolation and lack of direct professional support. These maternal mental health issues affected infant nutrition and decreased breastfeeding rates during COVID-19. Twitter, a popular social media platform, can provide insight into public perceptions and sentiment about various health-related topics. With evidence of significant mental health issues among women during the COVID-19 pandemic, the perception of infant nutrition, specifically breastfeeding, remains unknown.

Methods

We aimed to understand public perceptions and sentiment regarding breastfeeding during the COVID-19 pandemic through Twitter analysis using natural language processing techniques. We collected and analyzed tweets related to breastfeeding and COVID-19 during the pandemic from January 2020 to May 2022. We used Python software (v3.9.0) for all data processing and analyses. We performed sentiment and emotion analysis of the tweets using natural language processing libraries and topic modeling using an unsupervised machine-learning algorithm.

Results

We analyzed 40,628 tweets related to breastfeeding and COVID-19 generated by 28,216 users. Emotion analysis revealed predominantly “Positive emotions” regarding breastfeeding, comprising 72% of tweets. The overall tweet sentiment was positive, with a mean weekly sentiment of 0.25 throughout, and was affected by external events. Topic modeling revealed six significant themes related to breastfeeding and COVID-19. Passive immunity through breastfeeding after maternal vaccination had the highest mean positive sentiment score of 0.32.

Conclusions

Our study provides insight into public perceptions and sentiment regarding breastfeeding during the COVID-19 pandemic. Contrary to other topics we explored in the context of COVID (e.g., ivermectin, disinformation), we found that breastfeeding had an overall positive sentiment during the pandemic despite the documented rise in mental health challenges in pregnant and breastfeeding mothers. The wide range of topics on Twitter related to breastfeeding provides an opportunity for active engagement by the medical community and timely dissemination of advice, support, and guidance. Future studies should leverage social media analysis to gain real-time insight into public health topics of importance in child health and apply targeted interventions. (Author)

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2023-11804

Perinatal Telehealth: Meeting Patients Where They Are. Kissler K, Brie Thumm E, Smith DC, et al (2024), Journal of Midwifery & Women's Health vol 69, no 1, January/February 2024, pp 9-16

Introduction

Prior to the coronavirus disease 2019 (COVID-19) pandemic, studies of innovative telehealth perinatal care models showed similar clinical outcomes and perceived quality of care between groups receiving a combination of virtual video and in-person visits. However, these studies included primarily White, English-speaking participants, excluding those who were economically disenfranchised or did not speak English. The purpose of this qualitative study was to describe perinatal patients' and providers' experiences with telehealth during and after the acute phase of the COVID-19 pandemic to inform future utilization of telehealth to drive the delivery of high-quality, accessible, and equitable perinatal care to diverse communities.

Methods

This descriptive qualitative study included a purposive sample of 14 patients and 17 providers who received or provided perinatal care via telehealth in either a certified nurse-midwifery practice or the nurse-family partnership care model between March 2020 and April 2022. Maximum variation sampling offered a diverse population based on race, ethnicity, and rurality. Researchers conducted 2 rounds of semistructured interviews with a focus on understanding social and geographic context.

Results

Six themes were identified through inductive analysis: (1) unexpected advantages of telehealth, (2) patient empowerment, (3) providers' fear of adverse outcomes, (4) concern for equitable care, (5) strategies to enhance the telehealth experience, and (6) strategies to address access to perinatal telehealth. Patients appreciated the increased ease and reduced cost of accessing visits, which led to fewer missed appointments. Health care providers saw great opportunity in telehealth but expressed concerns about accessibility for patients with language barriers or limited resources.

Discussion

This study provides insight into priorities for continued telehealth utilization focused on providing equitable access to perinatal care. Rather than returning to practices from before the COVID-19 pandemic formed from longstanding routines and perceived limitations, providers are encouraged to capitalize on the rapid innovations in telehealth to build a more effective, equitable, and patient-centered approach to perinatal care. (Author)

2023-11791

Coronavirus Disease 2019 (COVID-19) and Venous Thromboembolism During Pregnancy and Postpartum. Bruno AM, Horns JJ, Metz TD (2024), Obstetrics & Gynecology vol 143, no 1, January 2024, pp 139-142

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection is associated with increased risk for macro- and micro-thrombi. Consensus guidelines recommend use of thromboprophylaxis in nonobstetric patients with SARS-CoV-2 infection admitted to the hospital. National-level studies evaluating venous thromboembolism (VTE) among pregnant and postpartum individuals with and without SARS-CoV-2 infection have not been completed. We performed a retrospective cohort study of individuals aged 18 years or older delivering at more than 20 weeks of gestation with data in the MarketScan Commercial Insurance Database from 2016 through 2020. Of 811,008 deliveries, SARS-CoV-2 infection during pregnancy or through 6 weeks postpartum was associated with increased risk for VTE compared with no infection (1.0% vs 0.5%, adjusted hazard ratio 2.62, 95% CI 1.60–4.29). Findings support further consideration of thromboprophylaxis in the obstetric population with SARS-CoV-2 infection. (Author)

2023-11785

Obstetric Intervention and Perinatal Outcomes During the Coronavirus Disease 2019 (COVID-19) Pandemic. Simon S, John S, Lisonkova S, et al (2023), Obstetrics & Gynecology vol 142, no 6, December 2023, pp 1405-1415

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OBJECTIVE:
To quantify pandemic-related changes in obstetric intervention and perinatal outcomes in the United States.

METHODS:
We carried out a retrospective study of all live births and fetal deaths in the United States, 2015–2021, with data obtained from the natality, fetal death, and linked live birth–infant death files of the National Center for Health Statistics. Analyses were carried out among all singletons; singletons of patients with prepregnancy diabetes, prepregnancy hypertension, and hypertensive disorders of pregnancy; and twins. Outcomes of interest included preterm birth, preterm labor induction or preterm cesarean delivery, macrosomia, postterm birth, and perinatal death. Interrupted time series analyses were used to estimate changes in the prepandemic period (January 2015–February 2020), at pandemic onset (March 2020), and in the pandemic period (March 2020–December 2021).

RESULTS:
The study population included 26,604,392 live births and 155,214 stillbirths. The prepandemic period was characterized by temporal increases in preterm birth and preterm labor induction or cesarean delivery rates and temporal reductions in macrosomia, postterm birth, and perinatal mortality. Pandemic onset was associated with absolute decreases in preterm birth (decrease of 0.322/100 live births, 95% CI 0.506–0.139) and preterm labor induction or cesarean delivery (decrease of 0.190/100 live births, 95% CI 0.334–0.047) and absolute increases in macrosomia (increase of 0.046/100 live births), postterm birth (increase of 0.015/100 live births), and perinatal death (increase of 0.501/1,000 total births, 95% CI 0.220–0.783). These changes were larger in subpopulations at high risk (eg, among singletons of patients with prepregnancy diabetes). Among singletons of patients with prepregnancy diabetes, pandemic onset was associated with a decrease in preterm birth (decrease of 1.634/100 live births) and preterm labor induction or cesarean delivery (decrease of 1.521/100 live births) and increases in macrosomia (increase of 0.328/100 live births) and perinatal death (increase of 9.840/1,000 total births, 95% CI 3.933–15.75). Most changes were reversed in the months after pandemic onset.

CONCLUSION:
The onset of the coronavirus disease 2019 (COVID-19) pandemic was associated with a transient decrease in obstetric intervention (especially preterm labor induction or cesarean delivery) and a transient increase in perinatal mortality. (Author)
Full URL: https://doi.org/10.1097/AOG.0000000000005412

2023-11781

Use of Prenatal Telehealth in the First Year of the COVID-19 Pandemic. Gourevitch RA, Anyoha A, Ali MM, et al (2023), JAMA Network Open vol 6, no 10, October 2023, e2337978

This journal article is a research letter detailing a cross-sectional study that leveraged a multistate representative survey to describe variation in prenatal telehealth use and reasons for its non-use at the height of the COVID-19 pandemic. (JM2)
Full URL: https://doi.org/10.1001/jamanetworkopen.2023.37978

2023-11769

"Trauma, abandonment and isolation": experiences of pregnancy and maternity services in Scotland during COVID-19. Engender, Health and Social Care Alliance Scotland (2023), September 2023

The report, '"Trauma, abandonment and isolation": Experiences of pregnancy and maternity services in Scotland during Covid-19', draws on survey responses from over 200 women across Scotland. It documents the profound and negative impact that public health restrictions had on access to vital healthcare across all aspects of these services from antenatal care, fertility treatment, to miscarriage and baby loss, birth and the postnatal period. (Author)
Full URL: https://www.engender.org.uk/content/publications/MATFinalNEW.pdf

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2023-11759

Cytokine responses to SARS-COV2 infection in mother-infant dyads: a systematic review and meta-analysis. Jain S, Allen IE, Song D, et al (2023), Frontiers in Pediatrics 17 October 2023, online

Background: The COVID-19 pandemic has affected a significant number of pregnant women worldwide, but studies on immune responses have presented conflicting results. This study aims to systematically review cytokine profiles in pregnant women with SARS-CoV-2 infection and their infants to evaluate immune responses and potential transplacental transfer of cytokines.

Materials and methods: A comprehensive search of 4 databases was conducted to identify relevant studies. Inclusion criteria included studies measuring individual cytokines in pregnant women and/or their neonates. Studies were evaluated for quality, and data were extracted for analysis. Meta-analyses were performed using the random-effects model.

Results: Seventeen studies met the inclusion criteria, including data from 748 pregnant women and 287 infants. More than three of these studies evaluated data of 20 cytokines in maternal serum, and data of 10 cytokines was available from cord blood samples. Only the serum level of CXCL10 was significantly up-regulated in SARS-CoV-2 positive pregnant women (n = 339) compared to SARS-CoV-2 negative pregnant women (n = 409). Subset analysis of maternal samples (n = 183) collected during the acute phase of COVID-19 infection showed elevated CXCL10 and IFN-γ. No significant differences in cytokine levels were found between cord blood samples collected from infants born to mothers with (n = 97) and without (n = 190) COVID-19 during gestation. Subset analysis of cord blood samples collected during the acute phase of maternal infection was limited by insufficient data. The heterogeneity among the studies was substantial.

Conclusion: The findings suggest that maternal cytokines responses to SARS-CoV-2 infection during pregnancy are not significantly dysregulated, except for CXCL10 and IFN-γ during the acute phase of illness. No evidence of increased cytokine levels in cord blood samples was observed, although this could be impacted by the time period between initial maternal infection and cord blood collection. These results provide some reassurance to parents and healthcare providers but should be interpreted cautiously due to study variations and limitations. (Author)

Full URL: https://doi.org/10.3389/fped.2023.1277697

2023-11584

Transplacental passage of nirmatrelvir in pregnant women with COVID-19. Chuang M-T, Su M-T, Chou C-H, et al (2024), International Journal of Gynecology & Obstetrics vol 164, no 1, January 2024, pp 351-353

The transplacental passage of nirmatrelvir in pregnant women with COVID-19 is limited and reinforces the safety of using Paxlovid in pregnancy. (Author)

2023-11516

Performance of glycated hemoglobin A1c for the diagnosis of gestational diabetes mellitus during the SARS-CoV-2 pandemic in Belgium (2020–2021). Negrea M-C, Oriot P, Courcelles A, et al (2023), European Journal of Obstetrics & Gynecology and Reproductive Biology vol 289, October 2023, pp 36-41

Objectives

During the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic, health care access was restricted. To reduce the risk of maternal SARS-CoV-2 infection, simplified screening recommendations for gestational diabetes mellitus (GDM) have been suggested, leading to glycated hemoglobin A1c (HbA1c) being proposed as an alternative to the oral glucose tolerance test (OGTT). This study aimed to assess the optimal HbA1c cutoff to confirm GDM diagnosis according to IADPSG/WHO2013 guidelines.

Methods

In this retrospective study, 3361 pregnancies were followed at the hospital of Mouscron and the Cliniques Universitaires St Luc in Brussels (2020–2021). GDM was universally screened in the third trimester of gestation. The

ROC curve was used to evaluate the diagnostic performance of HbA1c with OGTT as the reference. Sensitivity, specificity and likelihood ratios for different HbA1c thresholds were calculated.
Results
In total, 312 women were selected due to HbA1c analysis in addition to OGTT, and 149 had GDM. The area under the ROC curve for GDM detection by HbA1c was 0.73 (95% CI 0.68–0.79, p < 0.0001). The cutoff value chosen as a possible threshold was HbA1c 5.5% (37 mmol/mol). The sensitivity, specificity, positive and negative likelihood ratios for this cutoff were 12.0%, 99.4%, 20 and 0.88, respectively. The Fagan nomogram test showed a posttest GDM probability of approximately 70%, corresponding to a 10-fold higher pretest probability. An HbA1c ≥ 5.5% (37 mmol/mol) would have avoided OGTT in 18% of women with GDM. These women with an HbA1c ≥ 5.5% had significantly higher rates of family history of diabetes, older age, higher BMI and higher blood glucose levels (fasting, 1 h and 2 h) at OGTT.
Conclusion
Our results are consistent with the literature concerning the diagnostic ability of GDM through HbA1c ≥ 5.5%. (Author)
Full URL: https://doi.org/10.1016/j.ejogrb.2023.08.368

2023-11367

Hypoxia modifies levels of the SARS-CoV-2 cell entry proteins, angiotensin-converting enzyme 2, and furin in fetal human brain endothelial cells. Mughis H, Lye P, Matthews SG, et al (2023), American Journal of Obstetrics & Gynecology MFM vol 5, no 10, October 2023, 101126

BACKGROUND
It is not known whether human fetal brain endothelial cells that form the blood-brain barrier express angiotensin-converting enzyme 2, transmembrane serine protease 2, and furin, which are SARS-CoV-2 cell entry proteins. Moreover, it is unclear whether hypoxia, commonly observed during severe maternal COVID-19, can modify their level of expression. We hypothesized that human fetal brain endothelial cells isolated from early- and midpregnancy brain microvessels express angiotensin-converting enzyme 2, transmembrane serine protease 2, and furin. Furthermore, we hypothesized that hypoxia modifies their expression levels in a gestational age– and time-of-exposure–dependent manner.
OBJECTIVE
This study aimed to investigate whether early- and midpregnancy human fetal brain endothelial cells express angiotensin-converting enzyme 2, transmembrane serine protease 2, and furin SARS-CoV-2–associated cell entry proteins and to determine the effects of hypoxia on angiotensin-converting enzyme 2, transmembrane serine protease 2, and furin expression levels in human fetal brain endothelial cells.
STUDY DESIGN
This was a prospective study where human fetal brain endothelial cells isolated from early-pregnancy (12.4±0.7 weeks of gestation) and midpregnancy (17.9±0.5 weeks of gestation) fetal brain microvessels (6 per group) were exposed to different oxygen tensions (20%, 5%, and 1% oxygen) for 6, 24, and 48 hours. Angiotensin-converting enzyme 2, transmembrane serine protease 2, and furin messenger RNA and protein levels and localization were assessed using quantitative polymerase chain reaction, Western blot testing, and immunofluorescence.
RESULTS
Angiotensin-converting enzyme 2, transmembrane serine protease 2, and furin co-localize with the endothelial cell marker von Willebrand factor in human fetal brain endothelial cells isolated from early pregnancy and midpregnancy. In early pregnancy, TMPRSS2 messenger RNA expression was decreased by 5% oxygen compared with 20% oxygen after 6 hours of exposure (P<.05). In midpregnancy, 5% oxygen down-regulated ACE2 messenger RNA compared with 20% oxygen after 24 hours (P<.05). Furin messenger RNA expression was decreased under 5% and 1% oxygen compared with 20% oxygen (P<.05) after 24 hours. In midpregnancy, angiotensin-converting enzyme 2 protein levels were decreased under 5% and 1% oxygen (P<.001) after 24 hours. In contrast, furin protein levels were increased under 1% oxygen compared with 20% oxygen after 24 hours (P<.05). At 48 hours, 1% oxygen increased angiotensin-converting enzyme 2 protein levels compared with 20% oxygen (P<.01).
CONCLUSION
Hypoxia modifies the expression of selected SARS-CoV-2 cell entry proteins in human fetal brain endothelial cells in a gestational age– and time-of-exposure–dependent manner. As severe COVID-19 may lead to maternal hypoxia, an

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altered expression of these proteins in the developing human blood-brain barrier could potentially lead to altered SARS-CoV-2 brain invasion and neurologic sequelae in neonates born to pregnancies complicated by SARS-CoV-2 infection. (Author)

Full URL: https://doi.org/10.1016/j.ajogmf.2023.101126

2023-11343

LGBTQ+ new and expectant parents' experiences of perinatal services during the UK's first COVID-19 lockdown.

Greenfield M, Darwin Z (2024), Birth vol 51, no 1, March 2024, pp 134-143

Background

COVID-19 created specific challenges for new and expectant parents and perinatal services. Services changed rapidly in the United Kingdom (UK), including the withdrawal of home birth services, birth center closures, and restrictions on the number of birth partners allowed in the birth room. The purpose of this study was to examine how these changes affected the experiences of LGBTQ+ parents in the UK.

Methods

An online survey was conducted in April 2020 to provide real-time data capture of new and expectant families' experiences. It was open to those in the third trimester, or to those who had given birth since the beginning of the first UK lockdown period, and their partners. The survey asked open-ended questions about perinatal experiences. Demographic data were also collected, including sexual orientation and gender. Responses were collected from 1754 participants, including 76 who self-identified as LGBTQ+.

Results

Thematic analysis identified that LGBTQ+ new and expectant parents faced similar issues to cisgendered, heterosexual expectant parents, though additional concerns were also noted relating to support and recognition. Heterocentric policies negatively affect lesbian families. Non-birthing co-mothers feared invalidation as parents. Sexual minority pregnant women were more likely than heterosexual pregnant women to consider additional birth supporters and to consider freebirthing.

Discussion

Service changes introduced in the pandemic were cisheteronormative, creating additional challenges for LGBTQ+ new and expectant parents and compounding existing inequalities. When planning, changing, or evaluating perinatal services, specific consideration is needed to include birthing parents who are not mothers and mothers who did not give birth. If appropriate care is not available, consequences may include impaired perinatal wellbeing and restricted birth choices. Including sexual orientation and gender in data collection enables different perspectives to be considered. (Author)

Full URL: https://doi.org/10.1111/birt.12780

2023-11234

Influence of the COVID-19 pandemic on social determinants of health among an inner-city obstetrical population.

Hefelfinger LM, DeFranco EA, Mendez C, et al (2023), AJOG Global Reports vol 3, no 3, August 2023, 100225

BACKGROUND

Social determinants of health are a well-described influencer of pregnancy-related morbidity and mortality. It is unclear how societal changes secondary to the COVID-19 pandemic altered the social determinants of health among pregnant patients.

OBJECTIVE

This study aimed to investigate differences in the social determinants of health among patients who experienced pregnancy before and during the COVID-19 pandemic.

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STUDY DESIGN

This was a secondary analysis of an ongoing prospective cohort study examining the social determinants of health in postpartum patients at a single inner-city academic medical center. The planned secondary analysis was to compare the social determinants of health between patients that experienced societal changes before the pandemic and patients that experienced societal changes during the pandemic. Patients were included in the pandemic group if they delivered on or after March 30, 2020; moreover, patients in the pandemic group were compared with those who delivered before March 30, 2020 (referent group). Medical records were used to collect sociodemographic, pregnancy, and infant outcome data. The study participants were interviewed to collect detailed information regarding their perceived social, emotional, and physical environment as indicators of social determinants of health. Generalized linear modeling estimated the influence of social determinants of health on births during the COVID-19 pandemic.

RESULTS

Overall, 577 patients were enrolled in the study, of which 452 (78%) delivered before the COVID-19 pandemic and 125 (22%) delivered during the pandemic. Patients who delivered during the pandemic were more likely to report limited social or emotional support (relative risk, 1.62; 95% confidence interval, 1.02–2.59) and higher race-based discrimination (relative risk, 1.59; 95% confidence interval, 1.00–2.53). Mothers in the prepandemic group were more likely to have used federally funded programs, such as Medicaid, food stamps, and the Special Supplemental Nutrition Program for Women, Infants, and Children, during their pregnancy. Furthermore, the referent group reported more limited access to transportation. In addition, mothers in the prepandemic group were more likely to initiate prenatal care at a later gestational age and have fewer total prenatal care visits.

CONCLUSION

The COVID-19 pandemic created unprecedented changes in pregnancy care, and these were reflected in social determinants of health. It is imperative that we focus on the social determinants of health that were mitigated during this time and their effects on maternal and infant health. (Author)

Full URL: https://doi.org/10.1016/j.xagr.2023.100225

2023-11215

Intrauterine transmission of SARS-CoV-2 to and prenatal ultrasound abnormal findings in the fetus of a pregnant woman with mild COVID-19. Zhang M, Hou L, Guo L, et al (2023), BMC Pregnancy and Childbirth vol 23, no 723, 2023

Background

Whether intrauterine transmission of COVID-19 occurs remains uncertain, and it remains unclear whether the disease affects fetuses. We present a case of intrauterine transmission of SARS-CoV-2 infection and the prenatal ultrasonographic findings of the fetus in a pregnant woman with mild COVID-19.

Case presentation

A 30-year-old woman was admitted to our hospital for ultrasound examination in January 2023 at 26+ 3 weeks' gestation. Twenty-one days prior, her COVID-19 nucleic acid test was positive, and she had mild symptoms, including fever (38.3 °C), headache, chills, ankle pain and cough. After receiving symptomatic treatment, she fully recovered. Prenatal ultrasound revealed that the placenta was diffusely distributed with punctate echogenic foci, hepatomegaly, and the volume of bilateral lungs decreased significantly, with enhanced echo. In addition, we found that the surface of the fetal brain demonstrated widened gyri with a flattened surface. The prenatal MRI confirmed these fetal abnormalities. Amniotic fluid was tested for SARS-CoV-2, and the sample tested was positive for the virus. After careful consideration, the pregnant woman decided to terminate the pregnancy.

Conclusion

The intrauterine transmission of COVID-19 is certain. Moreover, the intrauterine transmission of COVID-19 may cause abnormalities in various organs of the fetus. (Author)

Full URL: https://doi.org/10.1186/s12884-023-06053-y

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2023-11183

Association of COVID-19 Vaccination During Early Pregnancy With Risk of Congenital Fetal Anomalies. Ruderman RS, Mormol J, Trawick E, et al (2023), Obstetrical and Gynecological Survey vol 78, no 1, January 2023, pp 5-6

COVID-19 infection increases the risk of maternal and neonatal morbidity in the pregnant population. While data suggest that COVID-19 vaccines are safe and effective during pregnancy, the risk to the fetus is unclear. (Abstracted from JAMA Pediatr 2022;176(7):717–719)(Author)

2023-11092

Racial disparities in adequacy of prenatal care during the COVID-19 pandemic in South Carolina, 2018–2021. Julceus EF, Olatosi B, Hung P, et al (2023), BMC Pregnancy and Childbirth vol 23, no 686, 2023

Background

During the COVID-19 pandemic, hospitals' decision of not admitting pregnant women's partner or support person, and pregnant women's fear of contracting COVID-19 in hospitals may disrupt prenatal care. We aimed to examine whether prenatal care utilization in South Carolina varied before and during the COVID-19 pandemic, and whether the variation was different by race.

Methods

We utilized 2018–2021 statewide birth certificate data using a pre-post design, including all women who delivered a live birth in South Carolina. The Kotelchuck Index - incorporating the timing of prenatal care initiation and the frequency of gestational age-adjusted visits - was employed to categorize prenatal care into inadequate versus adequate care. Self-reported race includes White, Black, and other race groups. Multiple logistic regression models were used to calculate adjusted odds ratio of inadequate prenatal care and prenatal care initiation after first trimester by maternal race before and during the pandemic.

Results

A total of 118,925 women became pregnant before the pandemic (before March 2020) and 29,237 women during the COVID-19 pandemic (March 2020 – June 2021). Regarding race, 65.2% were White women, 32.0% were Black women and 2.8% were of other races. Lack of adequate prenatal care was more prevalent during the pandemic compared to pre-pandemic (24.1% vs. 21.6%, $p < 0.001$), so was the percentage of initiating prenatal care after the first trimester (27.2% vs. 25.0%, $p < 0.001$). The interaction of race and pandemic period on prenatal care adequacy and initiation was significant. The odds of not receiving adequate prenatal care were higher during the pandemic compared to before for Black women (OR 1.26, 95% CI 1.20–1.33) and White women (OR 1.10, 95% CI 1.06–1.15). The odds of initiating prenatal care after the first trimester were higher during the pandemic for Black women (OR 1.18, 95% CI 1.13–1.24) and White women (OR 1.09, 95% CI 1.04–1.13).

Conclusions

Compared to pre-pandemic, the odds of not receiving adequate prenatal care in South Carolina was increased by 10% for White women and 26% for Black women during the pandemic, highlighting the needs to develop individual tailored interventions to reverse this trend. (Author)

Full URL: https://doi.org/10.1186/s12884-023-05983-x

2023-11071

Clinical, epidemiological and laboratory characteristics of cases of Covid-19-related maternal near miss and death at referral units in northeastern Brazil: a cohort study. Cunha ACMC, Katz L, Amorim AFC, et al (2023), Journal of Maternal-Fetal and Neonatal Medicine vol 36, no 2, 2023, 2260056

Objective: Covid-19 poses a major risk during pregnancy and postpartum, resulting in an increase in maternal mortality worldwide, including in Brazil; however, little research has been conducted into cases of a near miss. This study aimed to describe the frequency of COVID-19-related near miss and deaths during pregnancy or in the postpartum in referral centers in northeastern Brazil, as well as the clinical, epidemiological, and laboratory characteristics of the women

who experienced a severe maternal outcome.

Methods: A retrospective and prospective cohort study was performed between April 2020 and June 2021 with hospitalized pregnant and postpartum women with a diagnosis of COVID-19 confirmed by real-time polymerase chain reaction (RT-PCR). Data from five tertiary hospitals in northeastern Brazil were evaluated. Descriptive statistical analysis was performed using Epi Info, version 7.2.5.0.

Results: A total of 463 patients were included. Of these, 64 (14% of the sample) had a severe maternal outcome, with 42 cases of near miss (9%) and 22 maternal deaths (5%). Patients who had a severe maternal outcome were predominantly young (median age 30 years) and 65.6% were black or brown-skinned. The women had between 6 and 16 years of schooling; 45.3% had a stable partner; 81.3% were pregnant at the time of admission to the study; and 76.6% required a Cesarean section. The great majority (82.8%) had severe acute respiratory syndrome (SARS). Other complications included hypertensive syndromes (40.6%), pneumonia (37.5%), urinary tract infections (29.7%), acute renal failure (25.0%) and postpartum hemorrhage (21.9%). Sepsis developed in 18.8% of cases, neurological dysfunction in 15.6%, and hepatic dysfunction and septic shock in 14.1% of cases each. The relative frequency of admission to an intensive care unit was 87.5%, while 67.2% of the patients required assisted mechanical ventilation, and 54.7% required noninvasive ventilation. Antibiotics were prescribed in 93.8% of cases and corticosteroids in 71.9%, while blood transfusion was required in 25.0% of cases and renal replacement therapy in 15.6%. Therapeutic anticoagulants were administered to 12.5% of the patients. Of the patients who had a severe maternal outcome, the frequency of respiratory dysfunction was 93.8%, with 50.0% developing neurological dysfunction and 37.5% cardiovascular dysfunction. Hematological dysfunction was found in 29.7%, renal dysfunction in 18.8%, and uterine dysfunction in 14.1%. Hepatic dysfunction occurred in 7.8% of the sample. The near-miss ratio for Covid-19 was 1.6/1000 live births and the maternal mortality ratio for Covid-19 was 84.8/100,000 live births, with a mortality index of 34.4% in the sample.

Conclusion: This study revealed a low Covid-19-related maternal near miss (MNM) ratio of 1.6/1000 live births and a high Covid-19-related maternal mortality ratio (MMR) of 84.81/100,000 live births. The mortality index was also high. Most of the patients were admitted while pregnant, were young, married and black or brown-skinned, and none had completed university education. The majority had SARS and required admission to an intensive care unit and mechanical ventilation. Most were submitted to a Cesarean section. (Author)

Full URL: https://doi.org/10.1080/14767058.2023.2260056

2023-10947

COVID-19 during pregnancy could potentially affect placental function. Magawa S, Nii M, Enomoto N, et al (2023), Journal of Maternal-Fetal and Neonatal Medicine vol 36, no 2, 2265021

Objective

COVID-19 is an ongoing pandemic and has been extensively studied. However, the effects of COVID-19 during pregnancy, particularly on placental function, have not been verified. In this study, we used blood oxygen level-dependent magnetic resonance imaging (BOLD-MRI) to evaluate whether COVID-19 incidence during pregnancy has any lasting effects with respect to placental oxygenation.

Methods

This is a case-control study, in which eight cases of singleton pregnancies before 30 weeks gestation with COVID-19 mothers were included. Placental oxygenation was evaluated using BOLD-MRI after 32 weeks of gestation. BOLD-MRI was consecutively performed under normoxia (21% O2), hyperoxia (100% O2), and normoxia for 4 min each. Individual placental time–activity curves were evaluated to calculate the peak score (peakΔR2*) and the time from the start of maternal oxygen administration to the time of peakΔR2* (time to peakΔR2*). Eighteen COVID-19-free normal pregnancies from a previous study were used as the control group.

Results

No significant differences were found between the two groups regarding maternal background, number of days of delivery, birth weight, and placental weight. The parameter peakΔR2* was significantly decreased in the COVID-19 group (8 ± 3 vs. 5 ± 1, p < .001); however, there was no significant difference in time to peakΔR2* (458 ± 74 s vs. 471 ± 33 s, p = .644).

Conclusions

In this study, BOLD-MRI was used to evaluate placental oxygenation during pregnancy in COVID-19-affected patients. COVID-19 during pregnancy decreased placental oxygenation even post-illness, but had no effect on fetal growth; further investigation of the possible effects of COVID-19 on the fetus and mother is warranted. (Author)

Full URL: https://doi.org/10.1080/14767058.2023.2265021

2023-10915

Adapting the 'First 2000 Days maternal and child healthcare framework' in the aftermath of the COVID-19 pandemic: ensuring equity in the new world. Diaz AM, Brooker R, Cibralic S, et al (2023), Australian Health Review vol 47, no 1, 2023, pp 72-76

The purpose of this perspective article is to emphasise the importance of the 'First 2000 Days' policy of life from conception to age five, and to propose new directions in which the policy's implementation could be extended for the benefit of children and families. The proposed approach highlights principles of responsiveness, integration, sustainability and equity, specifying initiatives that embody the kind of innovation each principle aspires to. The article also proposes innovations in data collection and linkages that would strengthen the implementation of first 2000 days policies and frameworks. This perspective proposes a framework that could improve health systems implementation of services in the first 5 years of life, by proposing a well-coordinated continuum of services with integrated physical and digital solutions. This has the potential to transform how the health system monitors and responds to children and families' needs in the critical early years of life during and beyond the current pandemic. (Author)

Full URL: https://doi.org/10.1071/AH22228

2023-10828

Effect of infection with severe acute respiratory syndrome coronavirus 2 on the fetus in pregnant women who recovered from infection. Hammad LF, Almutairi AN, Aldahlawi RH (2023), Annals of Saudi Medicine vol 43, no 4, July/August 2023, pp 213-218

BACKGROUND: The effect of maternal infection with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) on the fetus is unclear, and there is no data from Saudi Arabia.

OBJECTIVE: Assess the effect of maternal SARS-CoV-2 infection on fetal growth.

DESIGN: Retrospective case-control

SETTING: Tertiary care hospital, Riyadh, Saudi Arabia

PATIENTS AND METHODS: We selected pregnant women who underwent an obstetric growth scan and umbilical artery Doppler ultra-sound examination between 28 and 41 weeks of pregnancy. Women with multiple pregnancy, fetal abnormalities, maternal body mass index >30, maternal hypertension, any other chronic diseases that might affect fetal growth or pregnant women suffering from cancer were excluded. Fetal growth parameters assessed included fetal biometry (biparietal diameter, head circumference, abdominal circumference and femur length). We also did an umbilical artery Doppler assessment, which includes the umbilical artery pulsatility index, resistive index and the systolic/diastolic ratio.

MAIN OUTCOME MEASURE: Fetal biometry and biophysical profile

SAMPLE SIZE: 48 SARS-CoV-2; 98 non-SARS-CoV-2

RESULTS: More women who had recovered from SARS-CoV-2 infection had small for gestational age fetuses compared with the control group (P=.001).

CONCLUSION: Maternal SARS-CoV-2 infection during pregnancy was associated with a higher prevalence of small for gestational age (SGA) fetuses.

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LIMITATIONS: Retrospective, middle cerebral artery and uterine artery Doppler data were not included nor were the effect of tobacco use and socioeconomic status, the relationship between the date of infection with the date of conceiving or the relationship between the severity of infection in the mother and fetal biometry and growth. (Author)

Full URL: https://doi.org/10.5144/0256-4947.2023.213

2023-10827

Evaluation of critically ill obstetric patients treated in an intensive care unit during the COVID-19 pandemic. Arslan K, Arslan HÇ, Şahin AS (2023), Annals of Saudi Medicine vol 43, no 1, January/February 2023, pp 10-16

BACKGROUND: Although obstetric morbidity and mortality have decreased recently, rates are still high enough to constitute a significant health problem. With the COVID-19 pandemic, many obstetric patients have required treatment in intensive care units (ICU).

OBJECTIVES: Evaluate critical obstetric patients who were treated in an ICU for COVID-19 and followed up for 90 days.

DESIGN: Medical record review

SETTING: Intensıve care unit

PATİENTS AND METHODS: Obstetric patients admitted to the ICU between 15 March 2020 and 15 March 2022 and followed up for at least 90 days were evaluated retrospectively. Patients with and without COVID-19 were compared by gestational week, indications, comorbidities, length of stay in the hospital and ICU, requirement for mechanical ventilation, blood transfusion, renal replacement therapy (RRT), plasmapheresis, ICU scores, and mortality.

MAIN OUTCOME MEASURES: Clinical outcomes and mortality.

SAMPLE SIZE AND CHARACTERISTICS: 102 patients with a mean (SD) maternal age of 29.1 (6.3) years, and median (IQR) length of gestation of 35.0 (7.8) weeks.

RESULTS: About 30% (n=31) of the patients were positive for COVID-19. Most (87.2%) were cesarean deliveries; 4.9% vaginal (8.7% did not deliver). COVID-19, eclampsia/preeclampsia, and postpartum hemorrhage were the most common ICU indications. While the 28-day mortality was 19.3% (n=6) in the COVID-19 group, it was 1.4% (n=1) in the non-COVID-19 group (P<.001). The gestational period was significantly shorter in the COVID-19 group (P=.01) while the duration of stay in ICU (P<.001) and mechanical ventilation (P=.03), lactate (P=.002), blood transfusions (P=.001), plasmapheresis requirements (P=.02), and 28-day mortality were significantly higher (P<.001). APACHE-2 scores (P=.007), duration of stay in ICU (P<.001) and mechanical ventilation (P<.001), RRT (P=.007), and plasmapheresis requirements (P=.005) were significantly higher in patients who died than in those who were discharged.

CONCLUSION: The most common indication for ICU admission was COVID-19. The APACHE-2 scoring was helpful in predicting mortality. We think multicenter studies with larger sample sizes are needed for COVID-19 obstetric patients. In addition to greater mortality and morbidity, the infection may affect newborn outcomes by causing premature birth. (Author)

Full URL: https://doi.org/10.5144/0256-4947.2023.10

2023-10824

Critical care, maternal and neonatal outcomes of pregnant women with COVID-19 admitted to eight intensive care units during the wildtype, alpha and delta waves of the pandemic across the North West of England—a retrospective review. Bhatia K, Columb M, Narayan B, et al (2023), Acta Obstetricia et Gynecologica Scandinavica vol 102, no 12, December 2023, pp 1719-1729

Introduction

Few studies have described obstetric and critical care outcomes in pregnant women with COVID-19 needing intensive care unit (ICU) admission.

Material and methods

Obstetric and critical care outcomes of COVID-19 women admitted to eight ICUs from April 1, 2020 to September 15, 2021, in the North West of England were retrospectively analyzed. Women admitted to ICU were assigned to three groups: antepartum women discharged from ICU prior to delivery (antepartum ICU-discharged group), antepartum

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women who had expedited delivery (antepartum ICU-delivered group) and a postpartum group. Our aims were to describe maternal characteristics and assess how delivery influenced the obstetric and critical care outcomes in these women.

Results

During the study period, 615 women tested positive for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), of whom 62 (10.1%) needed ICU admission due to symptomatic COVID-19. Pregnancy loss (3.2%) was recorded in two women. Detailed obstetric and critical outcomes from 60 women are reported. Nine antepartum women (15%) admitted to ICU were discharged and continued their pregnancy, 13 antepartum women (21.7%) had expedited delivery by cesarean birth after ICU admission and 38 (63.3%) women were admitted to ICU during the postpartum period. Antepartum ICU-discharged women contracted the SARS-CoV-2 at an earlier median gestational age (23 weeks; p = 0.0003) and needed ICU admission at an earlier median gestational age (28 weeks, p = 0.03) compared with antepartum ICU-delivered (28 and 32 weeks) and postpartum women (35.5 and 36 weeks). Antepartum ICU-discharged women had the lowest rate of mechanical ventilation receipt (11.1%) compared with antepartum ICU-delivered women (52.3%) and postpartum women (44.3%) but the difference was not statistically significant (p = 0.13). No significant differences were observed in the frequency and severity of critical care complications in the antepartum ICU-discharged, antepartum-ICU delivered and postpartum women.

Conclusions

Of the women admitted to ICU antepartum, 40% were discharged while remaining pregnant and 60% had expedited delivery. Antepartum women who were discharged from ICU without giving birth may receive lower rates of mechanical ventilation than those who delivered in ICU or admitted postpartum; however, further studies are needed to confirm or refute this association. (Author) [Erratum: Acta Obstetricia et Gynecologica Scandinavica, vol 103, no 6, June 2024, p 1232. https://doi.org/10.1111/aogs.14824]

Full URL: https://doi.org/10.1111/aogs.14681

2023-10768

Reduced maternal immunity and vertical transfer of immunity against SARS-CoV-2 variants of concern with COVID-19 exposure or initial vaccination in pregnancy. Boelig RC, Chaudhury S, Gromowski GD, et al (2023), Frontiers in Immunology 11 September 2023, online

Introduction: As the SARS-CoV-2 pandemic continues to evolve, we face new variants of concern with a concurrent decline in vaccine booster uptake. We aimed to evaluate the difference in immunity gained from the original SARS-CoV-2 mRNA vaccine series in pregnancy versus SARS-CoV-2 exposure during pregnancy against recent variants of concern.

Study Design: This is a retrospective analysis of previously collected samples from 192 patients who delivered between February 2021 and August 2021. Participants were categorized as 1) COVID vaccine: mRNA vaccine in pregnancy, 2) COVID-exposed, and 3) controls. The primary outcome was neutralizing capacity against wild-type, Delta, and Omicron-B1 between cohorts. Secondary outcomes include a comparison of cord-blood ID50 as well as the efficiency of vertical transfer, measured by cord-blood:maternal blood ID50 for each variant.

Results: Pregnant women with COVID-19 vaccination had a greater spike in IgG titers compared to both those with COVID-19 disease exposure and controls. Both COVID exposure and vaccination resulted in immunity against Delta, but only COVID vaccination resulted in significantly greater Omicron ID-50 versus controls. The neutralizing capacity of serum from newborns was lower than that of their mothers, with COVID-vaccination demonstrating higher cord-blood ID50 vs wildtype and Delta variants compared to control or COVID-exposed, but neither COVID-exposure nor vaccination demonstrated significantly higher Omicron ID50 in cord-blood compared to controls. There was a 0.20 (0.07-0.33, p=0.004) and 0.12 (0.0-0.24, p=0.05) increase in cord-blood:maternal blood ID50 with COVID vaccination compared to COVID-19 exposure for wild-type and Delta respectively. In pair-wise comparison, vertical transfer of neutralization capacity (cord-blood:maternal blood ID50) was greatest for wild-type and progressively reduced for

Delta and Omicron ID50.

Conclusion: Pregnant patients with either an initial mRNA vaccination series or COVID-exposure demonstrated reduced immunity against newer variants compared to wild-type as has been reported for non-pregnant individuals; however, the COVID-vaccination series afforded greater cross-variant immunity to pregnant women, specifically against Omicron, than COVID-disease. Vertical transfer of immunity is greater in those with COVID vaccination vs COVID disease exposure but is reduced with progressive variants. Our results reinforce the importance of bivalent booster vaccination in pregnancy for both maternal and infant protection and also provide a rationale for receiving updated vaccines as they become available. (Author)

Full URL: https://doi.org/10.3389/fimmu.2023.1216410

2023-10552

Differences in delivery hospitalization experiences during the COVID-19 pandemic by maternal race and ethnicity, Pregnancy Risk Assessment Monitoring System, 2020. Simeone RM, Meghani M, Meeker JR, et al (2024), Journal of Perinatology vol 44, no 1, January 2024, pp 20–27

Objective

We investigated maternal COVID-19 related experiences during delivery hospitalizations, and whether experiences differed by maternal race and ethnicity.

Study design

Data from the Pregnancy Risk Assessment Monitoring System among women with live births between April–December 2020 were used. Adjusted prevalence ratios (aPR) and 95% confidence intervals (CI) estimated associations between maternal race and ethnicity and COVID-19 related delivery experiences.

Results

Among 12,879 women, 3.6% reported infant separation and 1.8% reported not being allowed support persons. Compared with non-Hispanic White women, American Indian/Alaska Native (AI/AN) (aPR = 2.7; CI: 1.2–6.2), Hispanic (aPR = 2.2; CI: 1.5–3.1), non-Hispanic Black (aPR = 2.4; CI: 1.7–3.6), and non-Hispanic Asian (aPR = 2.8; CI: 1.6–4.9) women reported more infant separation due to COVID-19. Not being allowed support persons was more common among AI/AN (aPR = 5.2; CI: 1.8–14.8) and non-Hispanic Black (aPR = 2.3; CI: 1.3–4.1) women.

Conclusions

COVID-19 related delivery hospitalization experiences were unequally distributed among racial and ethnic minorities. (Author)

2023-10407

Maternal COVID-19 causing intrauterine foetal demise with microthrombotic placental insufficiency: a case report. Nonn O, Bonstingl L, Sallinger K, et al (2023), BMC Pregnancy and Childbirth vol 23, no 653, September 2023

Background

Pregnant women have an increased risk of getting infected with SARS-CoV-2 and are more prone to severe illness. Data on foetal demise in affected pregnancies and its underlying aetiology is scarce and pathomechanisms remain largely unclear.

Case

Herein we present the case of a pregnant woman with COVID-19 and intrauterine foetal demise. She had no previous obstetric or gynaecological history, and presented with mild symptoms at 34 + 3 weeks and no signs of foetal distress. At 35 + 6 weeks intrauterine foetal death was diagnosed. In the placental histopathology evaluation, we found inter- and perivillous fibrin depositions including viral particles in areas of degraded placental anatomy without presence of viral entry receptors and SARS-CoV-2 infection of the placenta.

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Conclusion

This case demonstrates that maternal SARS-CoV-2 infection in the third trimester may lead to an unfavourable outcome for the foetus due to placental fibrin deposition in maternal COVID-19 disease possibly via a thrombogenic microenvironment, even when the foetus itself is not infected. (Author)

Full URL: https://doi.org/10.1186/s12884-023-05942-6

2023-10342

Severe Maternal Morbidity and the Impact of the Covid Pandemic. Al Sayegh K, Dakin A, Clinton S, et al (2023), Irish Medical Journal vol 116, no 8, September 2023, p 832

Aims

The COVID-19 pandemic has affected day to day operations of our entire society including the health sector. From early in the pandemic, it became apparent that pregnant and recently pregnant women were more susceptible to severe COVID infection resulting in severe maternal morbidity (SMM). Our objective was to assess and analyse any impact that the COVID-19 pandemic may have had on rates of SMM in a stand-alone tertiary referral obstetric hospital.

Methods

An audit of patients that met the criteria for SMM during 2020 and 2021 was conducted and the incidence and causes of SMM were compared with data previously accrued from 2018 and 2019.

Results

The rate of SMM significantly decreased from 9 (2018-2019) to 5.3 (2020-2021) per 1000 deliveries: p=0.0001. While most of the categories for SMM decreased, Major Obstetric Haemorrhage (MOH) showed a statistically significant decrease from 5.7 to 3.4 per 1000 deliveries; p= 0.001 and renal/liver dysfunction decreased from 1.3 to 0.2 per 1000; p= 0.0004.

Discussion

SMM rates decreased by almost 50% in the initial two years of the Covid pandemic. Possible explanations for this include less effective capture of cases, the reproductive impact of the pandemic (including avoidance of pregnancy in women with co-morbidities) and potential benefits of lockdowns and social distancing in pregnancy. (Author)

Full URL: https://imj.ie/severe-maternal-morbidity-and-the-impact-of-the-covid-pandemic/

2023-09876

Vlogging Pregnancy and Laboring During the Pandemic on YouTube. Dai Z, Meindl M, Tetteh D (2023), The Journal of Perinatal Education vol 32, no 3, Autumn 2023

Since early 2020, the world has been dealing with the COVID-19 pandemic. The rapid changing situation led to unforeseeable challenges and questions for many people, including pregnant women. Through a textual analysis of personal narratives told via pregnancy and/or laboring vlogs during COVID-19, this present study aims to understand how women from China who live in another country during pregnancy have utilized YouTube vlogs to share their experiences. Through this analysis, we identify various challenges that these women experienced during their pregnancy. The COVID-19 pandemic exaggerated the normal difficulties of these issues and also created additional problems for these women, including regular pregnancy tests, choice of birthing locations, and the support and caring that were normal during this time period. (Author)

2023-09875

COVID-19 Impact on Group Prenatal Education: A Comparison of Virtual and In-Person Formats. Ahlers-Schmidt CR, Hervey AM (2023), The Journal of Perinatal Education vol 32, no 3, Autumn 2023

This retrospective study compared knowledge, intention, and satisfaction outcomes between pregnant women who

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attended prenatal education in person (n = 202; 55%) prior to the COVID-19 pandemic or virtually (n = 166; 45%) during the pandemic. Results identified increases in knowledge and intention for a healthy pregnancy and safe infant care for both groups. Virtual participants were less likely to endorse developing a birth plan (p = 0.035), knowledge of breastfeeding resources (p = 0.006), confidence in the ability to breastfeed (p = 0.033), and plans to use only a safe infant sleep location (p = 0.045). Important education was provided by continuing Baby Talk during the pandemic. However, topics with activities/demonstrations during in-person learning that were discontinued for virtual learning had significantly lower increases for virtual participants. Virtual education should incorporate more demonstrations/activities. (Author)

2023-09854

In uncharted territory "together each achieves more": a United Nations interagency collaboration for continuity of maternal and newborn health services during the coronavirus pandemic in the Eastern and Southern Africa region.
Bergh A-M, Gohar F, Kidula NA, et al (2023), Frontiers in Global Women's Health 31 August 2023, online

The frangible collaboration between three United Nations agencies (UNICEF, UNFPA and WHO) in the Eastern and Southern Africa Region was strengthened by the outbreak of the coronavirus pandemic. The aim was to combine existing resources and expertise to support countries to respond to the pandemic more effectively and efficiently regarding the provision of maternal and newborn health services. Three kinds of activities were conducted: 15 webinars on a variety of topics and issues impacted by the pandemic; virtual training on maternal and perinatal death surveillance and response as well as on quality improvement; and the development of online e-learning modules for continuous professional development. Key dimensions of the collaboration included: a common vision; commitment to the process; dialogue; building relationships and trust; communication and information sharing; sharing of technical and financial resources and expertise; mobilization of additional resources; celebration of intermediate outcomes; facilitative leadership; and institutional design. Start-up lessons revolved around shared risk taking, while retaining agency autonomy. Collaboration lessons included forming a "united front", harnessing technology to accelerate results, and mitigating adverse structural and contextual factors. There are widespread perceptions that collaborative initiatives tend to yield minimum results in terms of increased efficiency or effectiveness. This particular collaborative effort demonstrated elements of feasibility, value addition, synergy, cost effectiveness and demonstrable results where UN agencies delivered as one. The emergency in healthcare as a ripple effect of the coronavirus pandemic has caused a rethink of collaboration models and levels of engagement. (Author)

Full URL: https://doi.org/10.3389/frhs.2023.1230414

2023-09822

Serologic evolution and follow-up to IgG antibodies of infants born to mothers with gestational COVID. Vigil-Vázquez S, Manzanares Á, Hernanz-Lobo A, et al (2023), BMC Pregnancy and Childbirth vol 23, no 623, August 2023

Background

It is known that SARS-CoV-2 antibodies from pregnant women with SARS-CoV-2 infection during pregnancy cross the placenta but the duration and the protective effect of these antibodies in infants is scarce.

Methods

This prospective study included mothers with SARS-COV-2 infection during pregnancy and their infants from April 2020 to March 2021. IgG antibodies to SARS-CoV-2 spike protein were performed on women and infants at birth and at two and six months during follow-up. Anthropometrical measures and physical and neurological examinations and a clinical history of symptoms and COVID-19 diagnosis were collected. Simple linear regression was performed to compare categorical and continuous variables. To compare the mother's and infant's antibody titers evolution, a mixed linear regression model was used. A predictive model of newborn antibody titers at birth has been established by means of simple stepwise linear regression.

Results

51 mother-infant couples were included. 45 (90%) of the mothers and 44 (86.3%) of the newborns had a positive

serology al birth. These antibodies were progressively decreasing and were positive in 34 (66.7%) and 7 (13.7%) of infants at 2 and 6 months, respectively. IgG titers of newborns at birth were related to mothers' titers, with a positive moderate correlation (Pearson's correlation coefficient: 0.82, p < 0,001). Fetal/maternal antibodies placental transference rate was 1.3 (IQR: 0.7–2.2). The maternal IgG titers at delivery and the type of maternal infection (acute, recent, or past infection) was significantly related with infants' antibody titers at birth. No other epidemiological or clinical factors were related to antibodies titers. Neurodevelopment, psychomotor development, and growth were normal in 94.2% of infants in the third follow-up visit. No infants had a COVID-19 diagnosis during the follow-up period.

Conclusions

Transplacental transfer of maternal antibodies is high in newborns from mothers with recent or past infection at delivery, but these antibodies decrease after the first months of life. Infant's IgG titers were related to maternal IgG titers at delivery. Further studies are needed to learn about the protective role of maternal antibodies in infants. (Author)

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2023-09760

Variations across Europe in hospitalization and management of pregnant women with SARS-CoV-2 during the initial phase of the pandemic: Multi-national population-based cohort study using the International Network of Obstetric Survey Systems (INOSS). de Bruin O, Engjom H, Vousden N, et al (2023), Acta Obstetricia et Gynecologica Scandinavica vol 102, no 11, November 2023, pp 1521-1530

Introduction

The majority of data on COVID-19 in pregnancy are not from sound population-based active surveillance systems.

Material and methods

We conducted a multi-national study of population-based national or regional prospective cohorts using standardized definitions within the International Network of Obstetric Survey systems (INOSS). From a source population of women giving birth between March 1 and August 31, 2020, we included pregnant women admitted to hospital with a positive SARS-CoV-2 PCR test ≤7 days prior to or during admission and up to 2 days after birth. The admissions were further categorized as COVID-19-related or non-COVID-19-related. The primary outcome of interest was incidence of COVID-19-related hospital admission. Secondary outcomes included severe maternal disease (ICU admission and mechanical ventilation) and COVID-19-directed medical treatment.

Results

In a source population of 816 628 maternities, a total of 2338 pregnant women were admitted with SARS-CoV-2; among them 940 (40%) were COVID-19-related admissions. The pooled incidence estimate for COVID-19-related admission was 0.59 (95% confidence interval 0.27–1.02) per 1000 maternities, with notable heterogeneity across countries (I2 = 97.3%, P = 0.00). In the COVID-19 admission group, between 8% and 17% of the women were admitted to intensive care, and 5%–13% needed mechanical ventilation. Thromboprophylaxis was the most frequent treatment given during COVID-19-related admission (range 14%–55%). Among 908 infants born to women in the COVID-19-related admission group, 5 (0.6%) stillbirths were reported.

Conclusions

During the initial months of the pandemic, we found substantial variations in incidence of COVID-19-related admissions in nine European countries. Few pregnant women received COVID-19-directed medical treatment. Several barriers to rapid surveillance were identified. Investment in robust surveillance should be prioritized to prepare for future pandemics. (Author)

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2023-09753

Maternal health during the COVID-19 pandemic: Experiences of health workers in three Brazilian municipalities.
Carvalho RHSBF, Alves MTSSBE, Silva-Junior AGD, et al (2023), PLoS ONE vol 18, no 8, 29 August 2023, e0290068

Objective: To analyze the experiences of maternal health workers in three Brazilian cities, located in the Northeast (São Luís), Southeast (Niterói), and South (Pelotas) regions during the first year of the COVID-19 pandemic.

Methods: Qualitative research carried out between December 2020 and February 2021. Interviews were conducted, in person or remotely, with 30 health workers, doctors and nurses, working in maternity hospitals of different degrees of complexity.

Results: Sociodemographic characteristics, employment relationships and professional qualification of the interviewees were described. Two thematic axes were identified: 1) changes in hospital organization and dynamics in the pandemic; 2) Illness and suffering of health workers. The majority of respondents were women. Most physicians had work relationships in the public and private sectors. In Niterói, health workers had better professional qualifications and more precarious work relationships (as temporary hires), compared to São Luís and Pelotas. In the context of the uncertainties resulting from the pandemic, this situation generated even more insecurity for those workers. The statements at the beginning of the pandemic covered topics such as changes in the organizational dynamics of services, healthcare, telemedicine, and interaction between health workers and users. In the health workers' perception, the initial period of the health emergency, which resulted in intense changes in the provision of services, was marked by an increase in preterm births, perinatal mortality, and fetal losses. Work overload, fear of contamination, concern for family members and uncertainties regarding the new disease caused intense suffering in health workers who had little institutional support in the cities studied. The suffering experienced by health workers went beyond the work dimension, reaching their private life.

Conclusion: Changes caused by the pandemic required immediate adjustments in professional practices, generating insecurities in healthcare regardless of the location studied. The method of hiring health workers remained the same as the previously practiced one in each city. Due to the risk of disease transmission, measures contrary to humanization practices, and more restrictive in São Luís, were reported as harmful to obstetric care. The Covid-19 pandemic was a huge challenge for the Brazilian health system, aggravating the working conditions experienced by health workers. In addition to the work environment, it was possible to briefly glimpse its effects on private life.

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Conflict of interest statement
The authors declare that they have no conflict of interest (Author)
Full URL: https://doi.org/10.1371/journal.pone.0290068

2023-09746

Associations between COVID-19 State Policies and Maternal Mortality and Morbidity. Williams AM, Chaturvedi R, Abramovitz S, et al (2023), American Journal of Perinatology 24 August 2023, online

This journal article is research correspondence to an Editor. The research that the correspondence discusses is a retrospective study that aims to better understand the potential effects of state-level health care policy during the COVID-19 pandemic on maternal morbidity and mortality. (JM2)

2023-09743

The impact of COVID-19 on maternal death and fetal death, a cohort study in Brazil. Brioschi Dos Santos AP, Vicente CR, Cola JP, et al (2023), PLoS ONE vol 18, no 8, 17 August 2023, e0290343

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Objective: The study aimed to evaluate the risk of maternal death and fetal death among pregnant women infected with SARS-CoV-2.

Methods: This is a retrospective cohort study among pregnant women with secondary data from the National Live Births System (Sistema Nacional de Nascidos Vivos), National Mortality System (Sistema Nacional de Mortalidade), and e-SUS Health Surveillance System (Sistema e-SUS Vigilância em Saúde). Pregnant women confirmed for COVID-19 had positive RT-PCR between March 2020 and May 2021, pregnant women without COVID-19 were those without notification for disease. Maternal death, fetal death, and stillbirth were assessed as primary outcomes.

Results: We included 68,673 pregnant women not notified as suspected of COVID-19 and 1,386 with a confirmed diagnosis of COVID-19. Among pregnant women with COVID-19, 1013 (73.0%) were aged 20 to 34 years, 655 (47.2%) were brown, 907 (65.4%) had ≥ 8 years of education, in the third trimester of pregnancy (41.5%), undergoing cesarean section (64.5%). In adjusted analyses, COVID-19 in pregnancy had a higher risk of maternal death (relative risk [RR] 18.73-95% confidence interval [95%CI] 11.07-31.69), fetal death/stillbirth (RR 1.96-95%CI 1.18-3.25), preterm birth [RR 1.18-95%CI 1.01-1.39], cesarean delivery (RR 1.07-95%CI 1.02-1.11), and cesarean delivery occurring before the onset of labor (RR 1.33-95%CI 1.23-1.44).

Conclusion: COVID-19 may contribute to unfavorable pregnancy outcomes. Results showed that pregnant women infected with SARS-CoV-2 had a higher risk of maternal death, fetal death/stillbirth, preterm birth, cesarean delivery, and cesarean section occurring before the onset of labor.

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Conflict of interest statement
The authors have declared that no competing interests exist. (Author)
Full URL: https://doi.org/10.1371/journal.pone.0290343

2023-09684

Social Drivers of COVID-19 Disease Severity in Pregnant Patients. Mckinney J, Salmanian B, Grace R, et al (2023), American Journal of Perinatology 20 July 2023, online

Objective While coronavirus disease 2019 (COVID-19), the disease caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has had global impact in all populations, certain groups of patients have experienced disproportionate rates of morbidity and mortality. The purpose of this study was to assess the relationship between COVID-19 disease severity, demographic variables, race and ethnicity, and social determinants of health among pregnant patients in a diverse urban population.

Study Design A retrospective analysis was performed of all pregnant patients diagnosed with COVID-19 at two urban tertiary care centers in Houston, TX between March and August 2020. Maternal demographic, COVID-19 illness criteria, and delivery characteristics were collected. The Centers for Disease Control and Prevention Social Vulnerability Index (SVI) and COVID-19 Community Vulnerability Index (CCVI) were obtained based on a patients' census tract of residence. Analyses compared persons with asymptomatic, mild, or severe-critical disease at diagnosis.

Results A total of 317 persons tested positive for COVID-19 during this time period. Asymptomatic persons were more likely to be diagnosed at later gestational ages, but there were no other differences in baseline maternal characteristics. Persons with more severe disease had greater social vulnerability specifically for housing and transportation than those with mild disease (mean SVI [standard error]: 0.72 [0.06] vs. 0.58 [0.2], p = 0.03). Total SVI, total CCVI, and other themed SVI and CCVI indices were not significantly different between groups.

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Conclusion In this cohort of pregnant persons infected with SARS-CoV-2, an association was shown between disease severity and increased vulnerability in living conditions and transportation. Drivers of the pandemic and COVID-19 outcomes are complex and multifactorial, and likely change over time. However, continued efforts to accurately identify and measure social determinants of health in medicine will likely help identify geographic areas and patient populations that are at risk of higher disease burden. This could facilitate preventative and mitigation measures in these areas in future disaster or pandemic situations. (Author)

2023-09638

Severe Acute Respiratory Syndrome-Coronavirus-2 Antibody Status at the Time of Delivery and the Risk of Preeclampsia. Portmann-Baracco AS, Alcorta-Proaño RG, Nuñez-Mochizaki C, et al (2023), American Journal of Perinatology 26 June 2023, online

Objective Our objective was to evaluate the association between severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2) serologic status in immunologically naive patients and the risk of preeclampsia at the time of delivery.

Study Design We conducted a retrospective cohort study of pregnant patients admitted to our institution from August 1 to September 30, 2020. We recorded maternal medical and obstetric characteristics and SARS-CoV-2 serologic status. Our primary outcome was the incidence of preeclampsia. Antibody testing was performed, and patients were classified into seropositive groups: immunoglobulin (Ig)G + , IgM + , or both IgG+ and IgM + . Bivariate and multivariable analyses were performed.

Results We included 275 patients that were negative for SARS-CoV-2 antibodies, and 165 that were positive. Seropositivity was not associated with higher rates of preeclampsia (p = 0.183) or with preeclampsia with severe features (p = 0.916) even after adjusting for maternal age >35, BMI ≥ 30, nulliparity, and previous history of preeclampsia, and type of serologic status. Previous preeclampsia had the greatest association with the development of preeclampsia (odds ratio [OR] = 13.40; 95% confidence interval [CI]: 4.98–36.09; p < 0.05) and with preeclampsia with severe features (OR = 5.46; 95% CI: 1.65–18.02; p < 0.05).

Conclusion We found that in an obstetric population, there was no association between SARS-CoV-2 antibody status and the risk of preeclampsia. (Author)

2023-09627

Maternal and Cord Anti-SARS-CoV-2-Spike IgG following COVID-19 Vaccination versus Infection during Pregnancy: A Prospective Study, Israel October 2021–March 2022. Abu Shqara R, Frank Wolf M, Mikhail Mustafa S, et al (2023), American Journal of Perinatology 19 June 2023, online

Objective Defining how pregnant women respond to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection and vaccination is critical to optimize vaccination strategies that protect mother and infant at the epidemic. This study aimed to compare anti-SARS-CoV-2-spike immunoglobulin G (IgG) of vaccinated versus infected women and to determine the optimal timing of maternal vaccination during pregnancy at the time of epidemic.

Study Design We collected maternal/cord blood at delivery (October 2021–March 2022) and measured anti-SARS-CoV-2-spike IgG geometric mean concentrations (IgG-GMCs) using a quantitative immunoassay. We compared groups according to timing and number of doses and correlated maternal and fetal IgG levels. We described the proportion of women with IgG levels above the 150 AU/mL positivity threshold according to the timing of infection/vaccination and performed a subanalysis for maternal IgG-GMC levels pre- and during the Omicron wave.

Results We included 238 vaccinated women, 125 who received two doses and 113 three doses, and 48 unvaccinated infected women. All groups infected/vaccinated in the second or third trimester had an IgG-GMC above the positivity threshold. Third-trimester vaccination (second/third dose) resulted in higher maternal and cord-blood IgG-GMC compared to the second trimester (maternal-IgG: 102,32 vs. 4,325 AU/mL, p < 0.001; cord-IgG: 12,113 vs. 8,112 AU/mL, p

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< 0.001). Compared with infected-only women, a higher proportion of vaccinated women with ≥2 doses and their newborns had IgG levels above the positivity threshold at all time points. In vaccinated women, there were higher maternal IgG-GMC levels during the Omicron wave than pre-Omicron.

Conclusion At the time of epidemic, receiving an additional COVID-19 vaccine dose in the third trimester resulted in a higher IgG-GMC compared to the second trimester. Relatively higher levels of maternal and cord IgG-GMC were achieved following vaccination than infection. Women infected during or before the first trimester might benefit from an additional third-trimester dose to prevent peripartum infection and to passively immunize their newborn. The higher levels of maternal IgG-GMC in the Omicron period are suggestive of hybrid immunity. (Author)

2023-09626

Maternal–Fetal Results of COVID-19-Infected Pregnant Women Treated with Extracorporeal Membrane Oxygenation: A Descriptive Report. Alvarado-Socarras JL, Quintero-Lesmes DC, Martin DT, et al (2023), American Journal of Perinatology 19 June 2023, online

Objective COVID-19 infection may produce severe pneumonia, mainly in the adult population. Pregnant women with severe pneumonia are at high risk of developing complications, and conventional therapy sometimes fails to reverse hypoxemia. Therefore, extracorporeal membrane oxygenation (ECMO) is an option in cases with refractory hypoxemic respiratory failure. This study aims to evaluate the maternal–fetal risk factors, clinical characteristics, complications, and outcomes of 11 pregnant or peripartum patients with COVID-19 treated with ECMO.

Study Design This is a retrospective descriptive study of 11 pregnant women undergoing ECMO therapy during the COVID-19 pandemic.

Results In our cohort, four patients underwent ECMO during pregnancy (36.3%) and 7 during the postpartum period. Initially, they started on venovenous ECMO, and three patients were required to change modality due to clinical conditions. In total, 4/11 pregnant women (36.3%) died. We established two periods that differed in the implementation of a standardized care model for reducing associated morbidities and mortality. Neurological complications were responsible for most deaths. Regarding fetal outcomes at early-stage pregnancies on ECMO (4), we report three stillbirths (75%), and one newborn (twin pregnancy) survived and had a favorable evolution.

Conclusion At later-stage pregnancies, all newborns survived, and we did not identify any vertical infection. ECMO therapy is an alternative for pregnant women with severe hypoxemic respiratory failure due to COVID-19, and may improve maternal and neonatal results. Regarding fetal outcomes, the gestational age played a definitive role. However, the main complications reported in our series and others are neurological. It is essential to develop novel, future interventions to prevent these complications. (Author)

2023-09584

Monoclonal Antibody Therapy of Breastfeeding Patient Infected with SARS-CoV-2: A Case Report. Marshall NE, Blanton MB, Doratt BM, et al (2023), Breastfeeding Medicine vol 18, no 8, August 2023

Introduction: Although safety data demonstrated the efficacy and effectiveness of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) vaccination for all individuals over 6 months of age, including pregnant and breastfeeding individuals, optimal treatment courses for symptomatic pregnant and lactating individuals infected with SARS-CoV-2 remain to be defined.

Case Description: A coronavirus disease 2019 (COVID-19)-vaccinated breastfeeding woman received anti-SARS-CoV-2 monoclonal antibody treatment casirivimab–imdevimab 5 days after diagnosis of a symptomatic breakthrough SARS-CoV-2 infection.

Results and Conclusions: The patient did not present with obvious defects in innate or adaptive cellular subsets, but

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compared with controls had minimal maternal antibody response to recommended pregnancy vaccinations including SARS-CoV-2 and tetanus, diphtheria, pertussis (TDaP). The outcome of the monoclonal antibody infusion treatment was favorable as it transiently increased SARS-CoV-2 antibody titers in plasma and human milk compartments. (Author)

2023-09571

Association of continuity of carer and women's experiences of maternity care during the COVID-19 pandemic: A cross-sectional survey. Cummins A, Sheehy A, Taylor J, et al (2023), Midwifery vol 124, September 2023, 103761

Background

Recent research highlights the impact of the COVID-19 pandemic on maternity services, although none to date have analysed the association between continuity of carer and how women felt about the changes to pregnancy care and birth plans.

Aim

To describe pregnant women's self-reported changes to their planned pregnancy care and associations between continuity of carer and how women feel about changes to their planned care.

Methods

A cross-sectional online survey of pregnant women aged over 18 years in their final trimester of pregnancy in Australia.

Findings

1668 women completed the survey. Most women reported at least one change to pregnancy care and birthing plans. Women receiving full continuity of carer were more likely to rate the changes to care as neutral/positive ($p<.001$) when compared with women who received partial or no continuity.

Discussion

Pregnant women experienced many changes to their planned pregnancy and birth care during the COVID-19 pandemic. Women who received full continuity of carer experienced fewer changes to care and were more likely to feel neutral/positive about the changes than women who did not receive full continuity of carer. (Author)

Full URL: https://doi.org/10.1016/j.midw.2023.103761

2023-09500

PRECORSE study: Seroprevalence of severe acute respiratory syndrome coronavirus 2 in the first trimester of pregnancy during the first wave of the COVID-19 pandemic and subsequent pregnancy complications—A cohort study. Aquise A, Rayo N, Fernández-Buhigas I, et al (2023), International Journal of Gynecology & Obstetrics vol 163, no 1, October 2023, pp 326-328

The seroprevalence of severe acute respiratory syndrome coronavirus 2 among first-trimester pregnant women January 1 to May 15, 2020, was 8.2%. There were no significant differences in complications in seropositive women. (Author)

2023-09480

The Global Network COVID-19 studies: a review. Naqvi S, Saleem S, Billah SM, et al (2023), BJOG: An International Journal of Obstetrics and Gynaecology 2 August 2023, online

With the paucity of data available regarding COVID-19 in pregnancy in low- and middle-income countries (LMICs), near the start of the pandemic, the Global Network for Women's and Children's Health Research, funded by the National Institute of Child Health and Human Development (NICHD), initiated four separate studies to better understand the impact of the COVID-19 pandemic in eight LMIC sites. These sites included: four in Asia, in Bangladesh, India (two sites) and Pakistan; three in Africa, in the Democratic Republic of the Congo (DRC), Kenya and Zambia; and one in

Central America, in Guatemala. The first study evaluated changes in health service utilisation; the second study evaluated knowledge, attitudes and practices of pregnant women in relationship to COVID-19 in pregnancy; the third study evaluated knowledge, attitude and practices related to COVID-19 vaccination in pregnancy; and the fourth study, using antibody status at delivery, evaluated changes in antibody status over time in each of the sites and the relationship of antibody positivity with various pregnancy outcomes. Across the Global Network, in the first year of the study there was little reduction in health care utilisation and no apparent change in pregnancy outcomes. Knowledge related to COVID-19 was highly variable across the sites but was generally poor. Vaccination rates among pregnant women in the Global Network were very low, and were considerably lower than the vaccination rates reported for the countries as a whole. Knowledge regarding vaccines was generally poor and varied widely. Most women did not believe the vaccines were safe or effective, but slightly more than half would accept the vaccine if offered. Based on antibody positivity, the rates of COVID-19 infection increased substantially in each of the sites over the course of the pandemic. Most pregnancy outcomes were not worse in women who were infected with COVID-19 during their pregnancies. We interpret the absence of an increase in adverse outcomes in women infected with COVID-19 to the fact that in the populations studied, most COVID-19 infections were either asymptomatic or were relatively mild. (Author)

Full URL: https://doi.org/10.1111/1471-0528.17610

2023-09467

Trends over time in the knowledge, attitude and practices of pregnant women related to COVID-19: A cross-sectional survey from seven low- and middle-income countries. Jessani S, Saleem S, Fogleman E, et al (2023), BJOG: An International Journal of Obstetrics and Gynaecology 15 August 2023, online

Objective

To understand trends in the knowledge, attitudes and practices (KAP) of pregnant women related to COVID-19 in seven low- and middle-income countries.

Design

Multi-country population-based prospective observational study.

Setting

Study sites in Bangladesh, the Demographic Republic of Congo (DRC), Guatemala, India (two sites), Kenya, Pakistan and Zambia.

Population

Pregnant women in the Global Network's Maternal and Neonatal Health Registry (MNHR).

Methods

Pregnant women enrolled in the MNHR were interviewed to assess their KAP related to COVID-19 from September 2020 through July 2022 across all study sites.

Main outcome measures

Trends of COVID-19 KAP were assessed using the Cochran–Armitage test for trend.

Results

A total of 52 297 women participated in this study. There were wide inter-country differences in COVID-19-related knowledge. The level of knowledge of women in the DRC was much lower than that of women in the other sites. The ability to name COVID-19 symptoms increased over time in the African sites, whereas no such change was observed in Bangladesh, Belagavi and Guatemala. All sites observed decreasing trends over time in women avoiding antenatal care visits.

Conclusions

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The knowledge and attitudes of pregnant women related to COVID-19 varied substantially among the Global Network sites over a period of 2 years; however, there was very little change in knowledge related to COVID-19 over time across these sites. The major change observed was that fewer women reported avoiding medical care because of COVID-19 across all sites over time. (Author)

Full URL: https://doi.org/10.1111/1471-0528.17630

2023-09357

Knowledge, attitudes, and practices toward COVID-19 among pregnant women in Jordan during the COVID-19 outbreak. Mrayan L, Abujilban S, Tanash M, et al (2023), Birth vol 50, no 4, December 2023, pp 827-837

Background

COVID-19 is highly infectious and can cause harmful effects in pregnant women. As COVID-19 is a relatively new disease, there is a continuing need to assess the knowledge, attitudes, and practices (KAP) toward this virus among pregnant women globally in order to identify any gaps and suggest ways to address them. Little is known about how pregnant Jordanian women responded to the pandemic.

Objective

The purpose of this study was to investigate the level of KAP toward COVID-19 among pregnant women in Jordan and to detect the variables associated with a satisfactory KAP level.

Methods

A cross-sectional online survey based on a predesigned KAP survey was modified for use among pregnant women in Jordan. The data obtained from 574 participants were analyzed using the Statistical Package for the Social Sciences, version 23.

Results

Overall, pregnant women in Jordan were found to be knowledgeable, to have a positive attitude, and to exhibit good practices in relation to COVID-19. Some demographic factors were significantly associated with high levels of knowledge, positive attitudes, and safer practices.

Conclusions

Results suggest that special attention should be given by the government to pregnant women with respect to any future emergent situations such as additional COVID-19 surges or other novel respiratory conditions in order to ensure that they are fully informed and prepared. (Author)

2023-09247

Influenza Vaccination Among Pregnant People Before and During the Coronavirus Disease 2019 (COVID-19) Pandemic.

Irving SA, Crane B, Weintraub E, et al (2023), Obstetrics & Gynecology vol 142, no 3, September 2023, pp 636-639

There are limited data on influenza vaccination coverage among pregnant people in the United States during the coronavirus disease 2019 (COVID-19) pandemic. Within the Vaccine Safety Datalink, we conducted a retrospective cohort study to examine influenza vaccination coverage during the 2016–2017 through the 2021–2022 influenza seasons among pregnant people aged 18–49 years. Using influenza vaccines administered through March each season, we assessed crude coverage by demographic and clinical characteristics. Annual influenza vaccination coverage increased from the 2016–2017 season (63.0%) to a high of 71.0% in the 2019–2020 season. After the start of the COVID-19 pandemic, it decreased to a low of 56.4% (2021–2022). In each of the six seasons, coverage was lowest among pregnant people aged 18–24 years and among non-Hispanic Black pregnant people. The 2021–2022 season had the lowest coverage across all age and race and ethnicity groups. The recent decreases highlight the need for continued efforts to improve coverage among pregnant people. (Author)

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2023-09236

The time of motherhood in a time of crisis: a longitudinal qualitative study. Caffieri A, Margherita G (2025), Journal of Reproductive and Infant Psychology vol 43, no 2, 2025, pp 515-531

Aims/Background

The impact of the COVID-19 pandemic on the health of women in the perinatal period has been widely shown in literature. Although longitudinal quantitative studies investigated the long-term effects of the COVID-19 pandemic on both women and children's health, no longitudinal qualitative study can be found within literature. The study aimed at an in-depth exploration of the longitudinal trajectories, from pregnancy to postpartum, lived by women through the waves of the COVID-19 pandemic in Italy.

Design/Methods

As a method, the qualitative approach of Longitudinal Interpretative Phenomenological Analysis was used. A total of 14 women were interviewed for the first time during pregnancy (March-May 2021/second wave of the COVID-19 spread). Among the total, 8 completed a second interview, one year later, during postpartum (March-May 2022/end of the COVID-19 public emergency) and were included in the analysis.

Results

Three superordinated themes emerged: (1) Maternal functions during the COVID-19 pandemic; (2) 'Care' needs of women in maternal services; (3) Unspeakable: obstetric violence and gender inequality in the working field. Themes were organised considering women's experience, showing continuity and discontinuity paths overtime.

Conclusion

Women in their perinatal period during the COVID-19 pandemic felt like 'living incubators', both isolated and invested in individual and social responsibilities of 'caring'.

The study confirms the need to re-centre maternal care services' praxis on women's needs as an act of collective repair against the consequences of collective trauma of the COVID-19 pandemic. (Author)

2023-09218

"This is not what I imagined motherhood would look like": pregnancy, postpartum, and parenting during COVID-19 – a qualitative analysis of the first year since birth. Saleh L, Canclini S, Mathison C, et al (2023), BMC Pregnancy and Childbirth vol 23, no 578, August 2023

Background

Childbearing is one of the most emotional and transformative events in a woman's life. This study aims to explore the impact COVID-19 had on childbirth, postpartum, and the first year since giving birth.

Methods

This was a qualitative study using data previously collected for a larger study of women who had given birth during the COVID-19 pandemic in the United States. The findings presented here are from an analysis of a subset of open-ended questions. Sixty-six participants completed questions about how COVID-19 affected childbearing and postpartum experiences. Data was analyzed using inductive thematic analysis.

Results

Thematic analysis of the data identified five major themes and several subthemes, including: (1) amplification of new mother typical emotions (positive emotions and negative emotions), (2) financial impact on mothers and their families, (3) persistent impact of COVID-19, (4) new mom paradigm crash (first time mothers and experienced mothers faced different issues such as lack of education and support, adding a layer to the day-to-day, and negotiating time with others) and (5) validating the importance of maternal health. On the whole, participants were overwhelmed, isolated, and did not have enough physical and emotional support. There was a lack of supportive maternal healthcare both in the short-term and long-term, with an emphasis on poor postpartum support.

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Conclusions

This study supports previous findings that women who gave birth and entered motherhood during the COVID-19 pandemic were impacted in many ways. These findings contribute to the understanding of women's experiences not just in the immediate postpartum period, but in their daily lives one year after childbirth. The results highlight that our nation's traditional maternal healthcare model may be insufficient, especially when facing a national crisis. Strain placed on the healthcare system by COVID-19 impacted both the physical and mental health of mothers who were often left with inadequate care, education, and support. Our findings point to the need for more supportive maternal health both during childbirth and postpartum. (Author)

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2023-09197

Predicting adverse outcomes in pregnant patients positive for SARS-CoV-2: a machine learning approach- a retrospective cohort study. Young D, Houshmand B, Tan CC, et al (2023), BMC Pregnancy and Childbirth vol 23, no 553, August 2023

Background

Pregnant people are particularly vulnerable to SARS-CoV-2 infection and to ensuing severe illness. Predicting adverse maternal and perinatal outcomes could aid clinicians in deciding on hospital admission and early initiation of treatment in affected individuals, streamlining the triaging processes.

Methods

An international repository of 1501 SARS-CoV-2-positive cases in pregnancy was created, consisting of demographic variables, patient comorbidities, laboratory markers, respiratory parameters, and COVID-19-related symptoms. Data were filtered, preprocessed, and feature selection methods were used to obtain the optimal feature subset for training a variety of machine learning models to predict maternal or fetal/neonatal death or critical illness.

Results

The Random Forest model demonstrated the best performance among the trained models, correctly identifying 83.3% of the high-risk patients and 92.5% of the low-risk patients, with an overall accuracy of 89.0%, an AUC of 0.90 (95% Confidence Interval 0.83 to 0.95), and a recall, precision, and F1 score of 0.85, 0.94, and 0.89, respectively. This was achieved using a feature subset of 25 features containing patient characteristics, symptoms, clinical signs, and laboratory markers. These included maternal BMI, gravidity, parity, existence of pre-existing conditions, nicotine exposure, anti-hypertensive medication administration, fetal malformations, antenatal corticosteroid administration, presence of dyspnea, sore throat, fever, fatigue, duration of symptom phase, existence of COVID-19-related pneumonia, need for maternal oxygen administration, disease-related inpatient treatment, and lab markers including sFLT-1/PlGF ratio, platelet count, and LDH.

Conclusions

We present the first COVID-19 prognostication pipeline specifically for pregnant patients while utilizing a large SARS-CoV-2 in pregnancy data repository. Our model accurately identifies those at risk of severe illness or clinical deterioration, presenting a promising tool for advancing personalized medicine in pregnant patients with COVID-19. (Author)

Full URL: https://doi.org/10.1186/s12884-023-05679-2

2023-09186

Chest CT scan predictors of intensive care unit admission in hospitalized pregnant women with COVID-19: a case–control study. Badr DA, De Lucia F, Carlin A, et al (2023), Journal of Maternal-Fetal and Neonatal Medicine vol 36, no 2, 2241107

Purpose

To investigate the role of chest computed tomography (CT) scan in the prediction of admission of pregnant women with COVID-19 into intensive care unit (ICU).

Methods
This was a single-center retrospective case–control study. We included pregnant women diagnosed with COVID-19 by reverse transcriptase polymerase chain reaction between February 2020 and July 2021, requiring hospital admission due to symptoms, who also had a CT chest scan at presentation. Patients admitted to the ICU (case group) were compared with patients who did not require ICU admission (control group). The CT scans were reported by an experienced radiologist, blinded to the patient's course and outcome, aided by an artificial intelligence software. Total CT scan score, chest CT severity score (CT-SS), total lung volume (TLV), infected lung volume (ILV), and infected-to-total lung volume ratio (ILV/TLV) were calculated. Receiver operating characteristic curves were constructed to test the sensitivity and specificity of each parameter.

Results
8/28 patients (28.6%) required ICU admission. These also had lower TLV, higher ILV, and ILV/TLV. The area under the curve (AUC) for these three parameters was 0.789, 0.775, and 0.763, respectively. TLV, ILV, and ILV/TLV had good sensitivity (62.5%, 87.5%, and 87.5%, respectively) and specificity (84.2%, 70%, and 73.7%, respectively) for predicting ICU admission at the following selected thresholds: 2255 mL, 319 mL, and 14%, respectively. The performance of CT-SS, CT scan score, and ILV/TLV in predicting ICU admission was comparable.

Conclusion
TLV, ILV, and ILV/TLV as measured by an artificial intelligence software on chest CT, may predict ICU admission in hospitalized pregnant women, symptomatic for COVID-19. (Author)
Full URL: https://doi.org/10.1080/14767058.2023.2241107

2023-09041

Prenatal Health Care Outcomes Before and During the COVID-19 Pandemic Among Pregnant Individuals and Their Newborns in an Integrated US Health System. Ferrara A, Greenberg M, Zhu Y, et al (2023), JAMA Network Open vol 6, no 7, July 2023, e2324011
Importance The COVID-19 pandemic accelerated the use of telemedicine. However, data on the integration of telemedicine in prenatal health care and health outcomes are sparse.

Objective To evaluate a multimodal model of in-office and telemedicine prenatal health care implemented during the COVID-19 pandemic and its association with maternal and newborn health outcomes.

Design, Setting, and Participants This cohort study of pregnant individuals using longitudinal electronic health record data was conducted at Kaiser Permanente Northern California, an integrated health care system serving a population of 4.5 million people. Individuals who delivered a live birth or stillbirth between July 1, 2018, and October 21, 2021, were included in the study. Data were analyzed from January 2022 to May 2023.

Exposure Exposure levels to the multimodal prenatal health care model were separated into 3 intervals: unexposed (T1, birth delivery between July 1, 2018, and February 29, 2020), partially exposed (T2, birth delivery between March 1, 2020, and December 5, 2020), and fully exposed (T3, birth delivery between December 6, 2020, and October 31, 2021).

Main Outcomes and Measures Primary outcomes included rates of preeclampsia and eclampsia, severe maternal morbidity, cesarean delivery, preterm birth, and neonatal intensive care unit (NICU) admission. The distributions of demographic and clinical characteristics, care processes, and health outcomes for birth deliveries within each of the 3 intervals of interest were assessed with standardized mean differences calculated for between-interval contrasts. Interrupted time series analyses were used to examine changes in rates of perinatal outcomes and its association with the multimodal prenatal health care model. Secondary outcomes included gestational hypertension, gestational

diabetes, depression, venous thromboembolism, newborn Apgar score, transient tachypnea, and birth weight.

Results The cohort included 151 464 individuals (mean [SD] age, 31.3 [5.3] years) who delivered a live birth or stillbirth. The mean (SD) number of total prenatal visits was similar in T1 (9.41 [4.75] visits), T2 (9.17 [4.50] visits), and T3 (9.15 [4.66] visits), whereas the proportion of telemedicine visits increased from 11.1% (79 214 visits) in T1 to 20.9% (66 726 visits) in T2 and 21.3% (79 518 visits) in T3. NICU admission rates were 9.2% (7014 admissions) in T1, 8.3% (2905 admissions) in T2, and 8.6% (3615 admissions) in T3. Interrupted time series analysis showed no change in NICU admission risk during T1 (change per 4-week interval, −0.22%; 95% CI, –0.53% to 0.09%), a decrease in risk during T2 (change per 4-week interval, −0.91%; 95% CI, –1.77% to −0.03%), and an increase in risk during T3 (change per 4-week interval, 1.75%; 95% CI, 0.49% to 3.02%). There were no clinically relevant changes between T1, T2, and T3 in the rates of risk of preeclampsia and eclampsia (change per 4-week interval, 0.76% [95% CI, 0.39% to 1.14%] for T1; −0.19% [95% CI, –1.19% to 0.81%] for T2; and −0.80% [95% CI, –2.13% to 0.55%] for T3), severe maternal morbidity (change per 4-week interval , 0.12% [95% CI, 0.40% to 0.63%] for T1; −0.39% [95% CI, –1.00% to 1.80%] for T2; and 0.99% [95% CI, –0.88% to 2.90%] for T3), cesarean delivery (change per 4-week interval, 0.06% [95% CI, –0.11% to 0.23%] for T1; −0.03% [95% CI, –0.49% to 0.44%] for T2; and −0.05% [95% CI, –0.68% to 0.59%] for T3), preterm birth (change per 4-week interval, 0.23% [95% CI, –0.11% to 0.57%] for T1; −0.37% [95% CI, –1.29% to 0.55%] for T2; and −0.15% [95% CI, –1.41% to 1.13%] for T3), or secondary outcomes.

Conclusions and Relevance These findings suggest that a multimodal prenatal health care model combining in-office and telemedicine visits performed adequately compared with in-office only prenatal health care, supporting its continued use after the pandemic. (Author)

Full URL: https://doi.org/10.1001/jamanetworkopen.2023.24011

2023-09033

The effect of the COVID-19 pandemic on UK parent experiences of pregnancy ultrasound scans and parent-fetal bonding: A mixed methods analysis. Skelton E, Smith A, Harrison G, et al (2023), PLoS ONE vol 18, no 6, 2 June 2023, e0286578

Introduction: Companionship in antenatal care is important for facilitating positive parental experiences. During the COVID-19 pandemic, restrictions on partner attendance at fetal ultrasound scans were introduced nationally to minimise transmission of the virus. This study aimed to explore the effect of these restrictions on maternal and paternal experiences of pregnancy scans and evaluate their potential effect on parent-fetal bonding.

Methods: A UK-wide, anonymous cross-sectional survey was completed by new and expectant parents (n = 714) who had, or were awaiting a pregnancy scan during the COVID-19 pandemic. The CORE-10 and an adapted version of the Prenatal Attachment Inventory were used to evaluate psychological distress and prenatal bonding. Additional survey questions captured parental experiences of scans. Separate statistical and thematic analyses of the data were undertaken. A joint display matrix was used to facilitate integration of quantitative and qualitative claims to generate a comprehensive interpretation of study findings.

Findings: When fathers did not attend the scan, feelings of excitement and satisfaction were significantly reduced ($p<0.001$) and feelings of anxiety increased ($p<0.001$) in both parents. Mothers were concerned about receiving unexpected news alone and fathers felt excluded from the scan. Mean paternal bonding (38.22, SD 10.73) was significantly lower compared to mothers (47.01, SD 7.67) although no difference was demonstrated between those who had attended the scan and those who had not. CORE-10 scores suggested low-to-mild levels of psychological distress, although the mean difference between mothers and fathers was not significant. Key themes described both parents' sense of loss for their desired pregnancy scan experience and reflected on sonographers' central role in providing parent-centred care during scans.

Conclusion: Restrictions on partner attendance at scans during the COVID-19 pandemic had a negative effect on parental experiences of antenatal imaging. Provision of parent-centred care, which is inclusive of partners, is essential for improved parental experiences.

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Conflict of interest statement
The authors have declared that no competing interests exist. (Author)
Full URL: https://doi.org/10.1371/journal.pone.0286578

2023-09031

The antenatal psychological experiences of women during two phases of the COVID-19 pandemic: A recurrent, cross-sectional, thematic analysis. Jackson L, Davies SM, Podkujko A, et al (2023), PLoS ONE vol 18, no 6, 8 June 2023, e0285270

Initial COVID-19-related social distancing restrictions, imposed in the UK in March 2020, and the subsequent lifting of restrictions in May 2020 caused antenatal disruption and stress which exceeded expected vulnerabilities associated with this lifecourse transition. The current study aimed to explore the antenatal psychological experiences of women during different phases of pandemic-related lockdown restrictions in the UK. Semi-structured interviews were held with 24 women about their antenatal experiences: twelve were interviewed after the initial lockdown restrictions (Timepoint 1; T1), and a separate twelve women were interviewed after the subsequent lifting of those restrictions (Timepoint 2; T2). Interviews were transcribed and a recurrent, cross-sectional thematic analysis was conducted. Two themes were identified for each timepoint, and each theme contained sub-themes. T1 themes were: 'A Mindful Pregnancy' and 'It's a Grieving Process', and T2 themes were: 'Coping with Lockdown Restrictions' and 'Robbed of Our Pregnancy'. COVID-19 related social distancing restrictions had an adverse effect on women's mental health during the antenatal period. Feeling trapped, anxious, and abandoned were common at both timepoints. Actively encouraging conversations about mental wellbeing during routine care and adopting a prevention opposed to cure attitude toward implementing additional support provisions may serve to improve antenatal psychological wellbeing during health crises.

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Conflict of interest statement
The authors have declared that no competing interests exist. (Author)
Full URL: https://doi.org/10.1371/journal.pone.0285270

2023-08997

Social support for postpartum women and associated factors including online support to reduce stress and depression amidst COVID-19: Results of an online survey in Thailand. Kim SJ, Aye YM, Panyarachun D, et al (2023), PLoS ONE vol 18, no 7, 27 July 2023, e0289250

Background: Social support for postpartum women helps mothers to recover from childbirth and fosters healthy infant development. However, the impacts of reduced interpersonal interactions inflicted by the COVID-19 outbreak on available social support for postpartum women have received little attention. Therefore, this study aimed to examine the levels of social support provided to postpartum women and associated factors in Thailand during the COVID-19 pandemic.

Methods: A cross-sectional study was conducted from July to October 2021 using an anonymous online questionnaire. The responses of 840 eligible women up to six months postpartum in Thailand were obtained. The maternity social support scale was used to measure social support. Multivariate logistic regression was used to analyse the factors associated with social support among postpartum women.

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Results: About 57% of women reported to receive high support. Women in the high social support group were more likely to be married (aOR:2.70; 95% CI:1.57-4.66), have a university education or above (1.88; 1.35-2.64), have an intended pregnancy (2.06; 1.34-3.16), good health (2.01; 1.44-2.81), good sleep quality (1.62; 1.14-2.31), receive counsel from peers or family (1.56; 1.13-2.16), and use internet or social media to reduce stress and depression (1.51; 1.08-2.11). Meanwhile, women in the high social support group were significantly less likely to feed complementary foods to infants within 24 hours of completing the survey (0.28; 0.15-0.52).

Conclusions: The results of this study indicated that more than half of the women reported high support and illustrated the important role played by family, peers, and professionals as well as online and remote channels in providing postpartum informational and emotional support during the pandemic. Online platforms and remote support may be considered to provide social support to postpartum women during a pandemic such as COVID-19.

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Conflict of interest statement
The authors have declared that no competing interests exist. (Author)
Full URL: https://doi.org/10.1371/journal.pone.0289250

2023-08994

Pregnant women with mild COVID-19 followed in community setting by telemedicine, and factors associated with unfavorable outcome. Dinh A, Drouet F, Dechartres A, et al (2023), PLoS ONE vol 18, no 8, 3 August 2023, e0288845

Objectives: Few is known on pregnant women with mild COVID-19 managed in a community setting with a telemedicine solution, including their outcomes. The objective of this study is to evaluate the adverse fetal outcomes and hospitalization rates of pregnant COVID-19 outpatients who were monitored with the Covidom© telemedicine solution.

Methods: A nested study was conducted on pregnant outpatients with confirmed COVID-19, who were managed with Covidom© between March and November 2020. The patients were required to complete a standard medical questionnaire on co-morbidities and symptoms at inclusion, and were then monitored daily for 30 days after symptom onset. Adverse fetal outcome was defined as a composite of preterm birth, low birthweight, or stillbirth, and was collected retrospectively through phone contact with a standardized questionnaire.

Results: The study included 714 pregnant women, with a median age of 32.0 [29.0-35.0] and a median BMI of 23.8 [21.3-27.0]. The main comorbidities observed were smoking (53%), hypertension (19%). The most common symptoms were asthenia (45.6%), cough (40.3%) and headache (25.7%), as well as anosmia (28.4%) and agueusia (32.3%). Adverse fetal outcomes occurred in 64 (9%) cases, including 38 (5%) preterm births, 33 (5%) low birthweights, and 6 (1%) stillbirths. Hospitalization occurred in 102 (14%) cases and was associated with adverse fetal outcomes (OR 2.4, 95% CI 1.3-4.4).

Conclusions: Our study suggests that adverse fetal outcomes are rare in pregnant women with mild COVID-19 who are monitored at home with telemedicine. However, hospitalization for COVID-19 and pregnancy-induced hypertension are associated with a higher risk of adverse fetal outcome.

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Conflict of interest statement
The authors have declared that no competing interests exist. (Author)
Full URL: https://doi.org/10.1371/journal.pone.0288845

2023-08991

Relationship between aging population, birth rate and disposable income per capita in the context of COVID-19. Yang G, Zhang L (2023), PLoS ONE vol 18, no 8, 10 August 2023, e0289781

The outbreak of the COVID-19 in early 2020 and the recurring epidemic in later years have disturbed China's economy. Moreover, China's demographic dividend has been disappearing due to its fastest aging population and declining birth rate. The birth rates in eastern provinces of China are much lower than those of the western provinces. Considering the impacts of the COVID-19 and aging population, this paper focused on the relationship between birth rate and the disposable income and tried to find effective measures to raise China's birth rate. We discovered through regression analysis that the link between per capita disposable income and birth rate is initially "reverse J" and later "inverted J", indicating that per capita disposable income will influence the birth rate. Women's employment rate and educational level are negatively correlated with the birth rate. To raise the fertility rate in China, it is necessary to increase the marriage rate and the willingness to have children by raising the per capita disposable income and introducing effective tax relief policies.

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Conflict of interest statement
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Conflict of interest statement
The authors have declared that no competing interests exist. (Author)
Full URL: https://doi.org/10.1371/journal.pone.0289781

2023-08830

Hereditary angioedema and COVID-19 during pregnancy: Two case reports. Salih A, Chin A, Gandhi M, et al (2023), Journal of Allergy and Clinical Immunology: In Practice vol 11, no 3, March 2023, pp 961-962

Data regarding outcomes for pregnant women with hereditary angioedema and coronavirus disease 2019 (COVID-19) are unknown. However, pregnancy is potentially a risk factor in triggering severe disease in COVID-19 and hereditary angioedema. Implications for C1 esterase inhibition in patients with COVID-19 are discussed. (Author)
Full URL: https://doi.org/10.1016/j.jaip.2022.11.045

2023-08436

Pregnancy loss following miscarriage and termination of pregnancy for medical reasons during the COVID-19 pandemic: a thematic analysis of women's experiences of healthcare on the island of Ireland. Heaney S, Galeotti M, Aventin Á (2023), BMC Pregnancy and Childbirth vol 23, no 529, July 2023

Background
Losing a baby during pregnancy can be a devastating experience for expectant parents. Many report dedicated, compassionate healthcare provision as a facilitator of positive mental health outcomes, however, healthcare services have been severely impacted during the COVID-19 pandemic.

Aim
To explore women's experiences of healthcare service provision for miscarriage and termination of pregnancy for medical reasons (TFMR) on the island of Ireland during the COVID-19 pandemic.

Methods
Findings combine data from elements of two separate studies. Study 1 used a mixed methods approach with women who experienced miscarriage and attended a hospital in Northern Ireland. Study 2 was qualitative and examined experiences of TFMR in Northern Ireland and Ireland. Data analysed for this paper includes open-ended responses from 145 women to one survey question from Study 1, and semi-structured interview data with 12 women from Study 2. Data were analysed separately using Thematic Analysis and combined for presentation in this paper.

Results
Combined analysis of results indicated three themes, (1) Lonely and anxiety-provoking experiences; (2) Waiting for inadequate healthcare; and (3) The comfort of compassionate healthcare professionals.

Conclusions
Women's experiences of healthcare provision were negatively impacted by COVID-19, with the exclusion of their partner in hospital, and delayed services highlighted as particularly distressing. Limited in-person interactions with health professionals appeared to compound difficulties. The lived experience of service users will be helpful in developing policies, guidelines, and training that balance both the need to minimise the risk of infection spread, with the emotional, psychological, and physical needs and wishes of parents. Further research is needed to explore the long-term impact of pregnancy loss during a pandemic on both parents and health professionals delivering care. (Author)

Full URL: https://doi.org/10.1186/s12884-023-05839-4

2023-08303

Different impact of COVID-19 on symptomatic pregnant and postpartum women in low-income countries and low- and middle-income countries. Mahajan NN, Ansari M, Munshi H, et al (2023), International Journal of Gynecology & Obstetrics vol 162, no 3, September 2023, pp 1110-1113

The adverse outcomes of COVID-19 among pregnant women have been pronounced in the low-income countries compared with low- and middle-income countries. (Author)

2023-08295

Evaluation of long-COVID symptoms in women infected with SARS-CoV-2 during pregnancy. Kandemir H, Bülbül GA, Kirtiş E, et al (2024), International Journal of Gynecology & Obstetrics vol 164, no 1, January 2024, pp 148-156

Objective
To evaluate the symptoms of Long COVID (LC), frequency of symptoms, and possible risk factors in women diagnosed with coronavirus disease 2019 (COVID-19) during pregnancy.

Methods
We conducted a single-center, cross-sectional, retrospective study in 99 pregnant women who were polymerase chain reaction-positive (PCR+) for COVID-19 between March 1, 2020 and April 30, 2022. The control group consisted of 99 women who gave birth between these dates and did not have COVID-19. We evaluated the clinical manifestations, symptom prevalence, and symptom characteristics of acute COVID-19 and the LC in the PCR+ group as well as questioned the control group for LC symptoms.

Results
Of the women in the PCR+ group, 74 (74.7%) had at least one LC symptom, and the most common symptoms were

fatigue (54; 72.9%), myalgia/arthralgia (49; 66.2%), and anosmia/ageusia (31; 41.9%). The rate of LC symptoms in the control group was 14 (14.1%). The prevalence of LC symptoms was higher in severely/critically symptomatic patients (23; 100%) in the acute period of disease than in asymptomatic/mildly symptomatic (51; 67.1%) (P = 0.005). Hospitalization during acute infection (adjusted odds ratio [aOR] = 13.30), having one or more symptoms (aOR = 4.75), and having symptoms such as cough (aOR = 6.27) and myalgia/arthralgia (aOR = 12.93) increased the likelihood of LC.

Conclusion

Many women experienced LC after suffering acute COVID-19 in pregnancy, but LC prevalence was similar to the general population. LC correlates with severity, type, and number of symptoms of acute COVID-19. (Author)

2023-08261

Vertical transmission of SARS-CoV-2 – are there differences in rates of neonatal SARS-CoV-2 infection in two classification systems?. Mand N, Hutten M, Maier RF, et al (2023), Archives of Disease in Childhood: Fetal and Neonatal Edition 7 July 2023, online

Neonatal SARS-CoV-2 infection due to vertical transmission has been summarised in recent reviews.1 2 However, the comparability of the underlying case reports and case series might be limited because of the often inconsistent use of different classification systems.1

COVID-19-Related Obstetric and Neonatal Outcome Study (CRONOS) was a prospective German registry enrolling pregnant women with confirmed SARS-CoV-2 infection during their pregnancy.3 4 The registry collected data between 3 April 2020 and 10 February 2023 with 130 of 686 (18.9%) German obstetric hospitals actively participating.4 To classify the timing and the probability of mother-to-child transmission of SARS-CoV-2-positive newborns in the CRONOS cohort we used the classification systems of the Nordic Federation of Societies of Obstetrics and Gynecology (NFSOG)5 and WHO. (Author)

2023-08216

COVID-19 symptoms and antibody positivity among unvaccinated pregnant women: An observational study in seven countries from the Global Network. Kavi A, Goudar SS, Somannavar MS, et al (2023), BJOG: An International Journal of Obstetrics and Gynaecology 20 July 2023, online

Objective

To determine the relation of COVID-19 symptoms to COVID-19 antibody positivity among unvaccinated pregnant women in low- and middle-income countries (LMIC).

Design

COVID-19 infection status measured by antibody positivity at delivery was compared with the symptoms of COVID-19 in the current pregnancy in a prospective, observational cohort study in seven LMICs.

Setting

The study was conducted among women in the Global Network for Women's and Children's Health's Maternal and Newborn Health Registry (MNHR), a prospective, population-based study in Kenya, Zambia, the Democratic Republic of the Congo (DRC), Bangladesh, Pakistan, India (Belagavi and Nagpur sites) and Guatemala.

Population

Pregnant women enrolled in the ongoing pregnancy registry at study sites.

Methods

Data on COVID-19 symptoms during the current pregnancy were collected by trained staff between October 2020 and June 2022. COVID-19 antibody testing was performed on samples collected at delivery. The relation between COVID-19 antibody positivity and symptoms was assessed using generalised linear models with a binomial distribution

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adjusting for site and symptoms.

Main outcome measures
COVID-19 antibody status and symptoms of COVID-19 among pregnant women.

Results
Among 19 218 non-vaccinated pregnant women who were evaluated, 14.1% of antibody-positive women had one or more symptoms compared with 13.4% in antibody-negative women. Overall, 85.3% of antibody-positive women reported no COVID-19 symptoms during the present pregnancy. Reported fever was significantly associated with antibody status (relative risk [RR] 1.10, 95% CI 1.03–11.18; P = 0.008). A multiple variable model adjusting for site and all eight symptoms during pregnancy showed similar results (RR 1.13, 95% CI 1.04–1.23; P = 0.012). None of the other symptoms was significantly related to antibody positivity.

Conclusions
In a population-based cohort in LMICs, unvaccinated pregnant women who were antibody-positive had slightly more symptoms during their pregnancy and a small but significantly greater increase in fever. However, for prevalence studies, evaluating COVID-19-related symptoms does not appear to be useful in differentiating pregnant women who have had a COVID-19 infection. (Author)
Full URL: https://doi.org/10.1111/1471-0528.17604

2023-08200
Placental damage comparison between preeclampsia with COVID-19, COVID-19, and preeclampsia: analysis of caspase-3, caspase-1, and TNF-alpha expression. Bachnas MA, Putri AO, Rahmi E, et al (2023), AJOG Global Reports vol 3, no 3, August 2023, 100234

Background
Some studies have reported that preeclampsia with coronavirus disease 2019 (COVID-19) significantly increases the risk of adverse perinatal outcome until near to three-fold over the normal pregnancy. Preeclampsia pathophysiology in theory, increases the perinatal mortality and morbidity starting from placental injury which is also believed to share the common pathway with COVID-19 infection. Major typical placental injuries for these matters could be apoptotic, necrotic, or pyroptotic.

Objective
This study aimed to compare placental damage between those three conditions above in those three typical injuries.

Study Design
This was an observational analytic study with cross-sectional setting. Seventy-two pregnant women admitted to hospital consecutively with diagnosis of preeclampsia with COVID-19, Preeclampsia only and COVID-19 only. Diagnosis for preeclampsia was following FIGO criteria with at least one of the severe features. COVID-19 eligible for this study was PCR test confirmative with moderate to severe clinical degree. Placenta were taken after the delivery, and parameters were quantified with immunohistochemistry test for caspase-3, caspase-1, and TNF-alpha representing apoptotic, pyroptotic, and necrotic pathway respectively.

Results
Pregnancy with double complications, preeclampsia, and COVID-19, significantly has the highest placental damage on apoptotic, pyroptotic, and necrotic pathway shown from the caspase-3, caspase-1, and TNF-alpha expression in placenta ($p < 0.05$). Moderate to severe degree of COVID-19 resulting higher placental damage compared to preeclampsia in all the three forms ($p < 0.05$). Apoptotic process was the most prominent among other pathways.

Conclusion
Preeclampsia with COVID-19 infection showed significant placental damage, with major changes related were

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apoptosis, inflammation, and necrosis. This data support poor perinatal outcome of pregnancy having preeclampsia and COVID-19 at the same time. (Author)
Full URL: https://doi.org/10.1016/j.xagr.2023.100234

2023-08157

Prayer and meditation practices in the early COVID-19 pandemic: A nationwide survey among Danish pregnant women. The COVIDPregDK study. Prinds C, Hvidt NC, Schrøder K, et al (2023), Midwifery vol 123, August 2023, 103716

Background
The emergence of the COVID-19 pandemic and the derived changes in maternity care have created stress and anxiety among pregnant women in different parts of the world. In times of stress and crisis, spirituality, including spiritual and religious practices, may increase.

Objective
To describe if the COVID-19 pandemic influenced pregnant women's considerations and practises of existential meaning-making and to investigate such considerations and practices during the early pandemic in a large nationwide sample.

Methods
We used survey data from a nationwide cross-sectional study sent to all registered pregnant women in Denmark during April and May 2020. We used questions from four core items on prayer and meditation practices.

Results
A total of 30,995 women were invited, of whom 16,380 participated (53%). Among respondents, we found that 44% considered themselves believers, 29% confirmed a specific form of prayer, and 18% confirmed a specific form of meditation. In addition, most respondents (88%) reported that the COVID-19 pandemic had not influenced their responses.

Conclusion
In a nationwide Danish cohort of pregnant women, existential meaning-making considerations and practices were not changed due to the COVID-19 pandemic. Nearly one in two study participants described themselves as believers, and many practised prayer and/or meditation. (Author)
Full URL: https://doi.org/10.1016/j.midw.2023.103716

2023-08145

Barriers and facilitators to the provision of maternal health services at community health centers during the COVID-19 pandemic: Experiences of midwives in Indonesia. Herwansyah H, Czabanowska K, Schröder-Bäck P, et al (2023), Midwifery vol 123, August 2023, 103713

Objective
To explore the experiences of midwives in Indonesia on the provision of maternal health services during the COVID-19 pandemic.

Design and methods
A qualitative descriptive study using focus group discussions was undertaken. A conventional content analysis was used to analyze the data. Coding categories were generated from the transcripts.

Setting and participants
Twenty-two midwives from five community health centers of three regions in the Province of Jambi, Indonesia were included.

Findings
The interviewees shared similar barriers and facilitators in delivering the services, including the unavailability of adequate protective equipment, the limitation of the number of services, and dealing with the new public health measures related to the COVID-19. Overall, midwives demonstrated a continued commitment to provide maternal health services during the pandemic.

Key conclusions and implications for practice
Significant changes in service delivery have been made to comply with pandemic related restrictions. Despite the unprecedentedly difficult working environment, the midwives continue to provide adequate services to the community by implementing a strict health protocol. Findings from this study contribute to a better understanding of how the quality of the services changed, as well as how new challenges can be addressed and positive changes can be reinforced. (Author)
Full URL: https://doi.org/10.1016/j.midw.2023.103713

2023-08108

Effects of dynamic zero COVID-19 policy on anxiety status and lifestyle changes of pregnant women in rural South China: a survey-based analysis by propensity score matching method. Ding Y, Shi X, Li G, et al (2023), Frontiers in Public Health 22 June 2023, online

Introduction: The coronavirus disease 2019 (COVID-19) pandemic triggered a global public health crisis and has brought an unprecedented impact on pregnant women. The problems faced by pregnant women in the rural areas of China during the epidemic are different from those in urban areas. Although the epidemic situation in China has gradually improved, studying the impact of the previous dynamic zero COVID-19 policy on the anxiety status and lifestyle of pregnant women in rural areas of China, is still necessary.

Methods: A cross-sectional survey of pregnant women in rural South China was conducted from September 2021 to June 2022.Using questionnaires, sociodemographic characteristics, anxiety status, physical activity, sleep quality, and dietary status of the population were collected. Using the propensity score matching method, the effect of the dynamic zero COVID-19 strategy on the anxiety status and lifestyle of pregnant women was analyzed.

Results: Among the pregnant women in the policy group (n = 136) and the control group (n = 680), 25.7 and 22.4% had anxiety disorders, 83.1 and 84.7% had low or medium levels of physical activity, and 28.7 and 29.1% had sleep disorders, respectively. However, no significant difference ($p > 0.05$) was observed between the two groups. Compared with control group, the intake of fruit in the policy group increased significantly ($p = 0.019$), whereas that of aquatic products and eggs decreased significantly ($p = 0.027$). Both groups exhibited an unreasonable dietary structure and poor compliance with the Chinese dietary guidelines for pregnant women ($p > 0.05$). The proportion of pregnant women in the policy group, whose intake of stable food ($p = 0.002$), soybean, and nuts ($p = 0.004$) was less than the recommended amount, was significantly higher than that in the control group.

Discussion: The dynamic zero COVID-19 strategy had little impact on the anxiety status, physical activity, and sleep disorders of pregnant women in the rural areas of South China. However, it affected their intake of certain food groups. Improving corresponding food supply and organized nutritional support should be addressed as a strategic approach to improve the health of pregnant women in rural South China during the pandemic. (Author)
Full URL: https://doi.org/10.3389/fpubh.2023.1182619

2023-08006

A unique maternal and placental galectin signature upon SARS-CoV-2 infection suggests galectin-1 as a key alarmin at the maternal–fetal interface. Zhao F, Tallarek A-C, Wang Y, et al (2023), Frontiers in Immunology 5 July 2023, online

The severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic imposed a risk of infection and disease in pregnant women and neonates. Successful pregnancy requires a fine-tuned regulation of the maternal immune

system to accommodate the growing fetus and to protect the mother from infection. Galectins, a family of β-galactoside–binding proteins, modulate immune and inflammatory processes and have been recognized as critical factors in reproductive orchestration, including maternal immune adaptation in pregnancy. Pregnancy-specific glycoprotein 1 (PSG1) is a recently identified gal-1 ligand at the maternal–fetal interface, which may facilitate a successful pregnancy. Several studies suggest that galectins are involved in the immune response in SARS-CoV-2–infected patients. However, the galectins and PSG1 signature upon SARS-CoV-2 infection and vaccination during pregnancy remain unclear. In the present study, we examined the maternal circulating levels of galectins (gal-1, gal-3, gal-7, and gal-9) and PSG1 in pregnant women infected with SARS-CoV-2 before vaccination or uninfected women who were vaccinated against SARS-CoV-2 and correlated their expression with different pregnancy parameters. SARS-CoV-2 infection or vaccination during pregnancy provoked an increase in maternal gal-1 circulating levels. On the other hand, levels of PSG1 were only augmented upon SARS-CoV-2 infection. A healthy pregnancy is associated with a positive correlation between gal-1 concentrations and gal-3 or gal-9; however, no correlation was observed between these lectins during SARS-CoV-2 infection. Transcriptome analysis of the placenta showed that gal-1, gal-3, and several PSG and glycoenzymes responsible for the synthesis of gal-1-binding glycotopes (such as linkage-specific N-acetyl-glucosaminyltransferases (MGATs)) are upregulated in pregnant women infected with SARS-CoV-2. Collectively, our findings identify a dynamically regulated “galectin-specific signature” that accompanies the SARS-CoV-2 infection and vaccination in pregnancy, and they highlight a potentially significant role for gal-1 as a key pregnancy protective alarmin during virus infection. (Author)

Full URL: https://doi.org/10.3389/fimmu.2023.1196395

2023-07870

Being pregnant and becoming a parent during the COVID-19 pandemic: a longitudinal qualitative study with women in the Born in Bradford COVID-19 research study. Jackson C, Brawner J, Ball M, et al (2023), BMC Pregnancy and Childbirth vol 23, no 494, July 2023

Background

Uncertainty around the risk of COVID-19 to pregnant women and their babies prompted precautionary restrictions on their health and care during the pandemic. Maternity services had to adapt to changing Government guidance. Coupled with the imposition of national lockdowns in England and restrictions on daily activities, women’s experiences of pregnancy, childbirth and the postpartum period, and their access to services, changed rapidly. This study was designed to understand women’s experiences of pregnancy, labour and childbirth and caring for a baby during this time.

Methods

This was an inductive longitudinal qualitative study, using in-depth interviews by telephone with women in Bradford, UK, at three timepoints during their maternity journey (18 women at timepoint one, 13 at timepoint two and 14 at timepoint three). Key topics explored were physical and mental wellbeing, experience of healthcare services, relationships with partners and general impact of the pandemic. Data were analysed using the Framework approach. A longitudinal synthesis identified over-arching themes.

Results

Three longitudinal themes captured what was important to women: (1) women feared being alone at critical points in their maternity journey, (2) the pandemic created new norms for maternity services and women’s care, and (3) finding ways to navigate the COVID-19 pandemic in pregnancy and with a baby.

Conclusions

Modifications to maternity services impacted significantly on women’s experiences. The findings have informed national and local decisions about how best to direct resources to reduce the impact of COVID-19 restrictions and the longer-term psychological impact on women during pregnancy and postnatally. (Author)

Full URL: https://doi.org/10.1186/s12884-023-05774-4

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2023-07854

Associations of stress, anxiety, and partner satisfaction with maternal-fetal attachment in women pregnant during the COVID-19 pandemic: an online study. Schaal NK, La Marca-Ghaemmaghami P, Märthesheimer S, et al (2023), BMC Pregnancy and Childbirth vol 23, no 483, June 2023

Background

The COVID-19 pandemic has led to exceptional stress in pregnant women. The aim of the present study was to investigate associations of maternal stress (pandemic-related and -unrelated), anxiety, and relationship satisfaction experienced during the COVID-19 pandemic with prenatal mother-infant attachment.

Methods

An online study was conducted evaluating pandemic-related stress, pregnancy-specific stress (unrelated to the pandemic), anxiety, partnership satisfaction, and maternal-fetal attachment in German-speaking women during the second COVID-19 lockdown between January and March 2021. In total, 431 pregnant women (349 lived in Germany and 82 in Switzerland) filled in the questionnaires and gave information on demographic and pregnancy-related variables (i.e. age, gestational age, parity). Bivariate correlations were calculated in order to investigate associations between the different variables and additionally, a hierarchical regression model was conducted in order to evaluate the influence of the independent variables on prenatal attachment.

Results

The hierarchical regression analysis revealed that after controlling for age, gestational age, and parity higher pandemic-related stress, namely stress associated with feeling unprepared for birth, higher partnership satisfaction as well as higher positive appraisal (considered as a way of coping with pandemic-related stress) was associated with stronger maternal-fetal attachment, whereas associations of anxiety and other forms of stress were non-significant.

Conclusions

The study highlights interesting associations between maternal pandemic-related preparedness stress and positive appraisal of the pregnancy as well as partnership satisfaction and prenatal attachment in women pregnant during the COVID-19 pandemic. (Author)

Full URL: https://doi.org/10.1186/s12884-023-05804-1

2023-07739

False-Positive Human Immunodeficiency Virus Screening Results in Pregnancy During the Coronavirus Disease 2019 (COVID-19) Pandemic. Miller M, Cevigney R, Ayyash M, et al (2023), Obstetrics & Gynecology vol 142, no 2, August 2023, pp 381-383

False-positive human immunodeficiency virus (HIV) test results are rare but have been documented in the setting of certain underlying conditions such as Epstein-Barr virus, metastatic cancer, and certain autoimmune conditions. A retrospective cohort study in a large hospital system was conducted to compare the occurrence of false-positive HIV fourth-generation test results before and after the coronavirus disease 2019 (COVID-19) pandemic in a population of pregnant patients (N=44,187; 22,073 pre-COVID and 22,114 during COVID). The COVID cohort had a significantly higher frequency of false-positive HIV test results compared with the pre-COVID cohort (0.381 vs 0.676, P=.002). Within the COVID cohort, 25% of patients had a positive polymerase chain reaction test result for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) preceding their false-positive HIV test results. When this subgroup was excluded, the difference in frequency of false-positive HIV test results between the cohorts was no longer significant (0.381 vs 0.507, P=.348). Our findings suggest that SARS-CoV-2 seropositivity was associated with an increased frequency of false-positive HIV test results in the pregnant population. (Author)

2023-07731

Ethical Considerations for the Delivery of Obstetric and Gynecologic Care During a Pandemic: ACOG Committee

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Statement No. 6. ACOG Committee on Ethics (2023), Obstetrics & Gynecology vol 142, no 1, July 2023, pp 225-230

Obstetrician–gynecologists (ob-gyns) are essential to providing high-quality health care, and this duty remains unchanged during pandemics. This Committee Statement discusses ethics related to the provision of obstetric and gynecologic care during a pandemic caused by a highly transmissible pathogen. As health care guidelines related to pandemics are created by institutions, ob-gyns have a responsibility to advocate for obstetric and gynecologic health priorities. Additionally, many clinical practice decisions made to reduce the spread of the infectious agent and maximize physicians' ability to care for those who need help will have ramifications on patient satisfaction, the patient–physician relationship, and equity in health outcomes. Obstetrician–gynecologists are obligated to protect themselves, their patients, and others by using appropriate protective measures (such as personal protective equipment and diagnostic testing) and observing institutional, state, and federal guidelines for the appropriate isolation and care of patients with suspected or confirmed disease. (Author)

2023-07690

Assessment of D-dimer levels in pregnant women diagnosed with COVID-19: A case-control study. Talmac MA, Bahat PY, Bestel A, et al (2023), Journal of Maternal-Fetal and Neonatal Medicine vol 36, no 2, 2023, 2231123

Objective

We aimed to evaluate D-dimer levels in pregnant women diagnosed with COVID-19.

Methods

This single-center study was carried out in a tertiary center hospital serving as a pandemic hospital. 151 pregnant women with COVID-19 diagnosis were included as the study group, and 70 healthy pregnant women as the control group. The data were analyzed separately in 3 different trimesters of pregnancy.

Results

Of the 221 pregnant women included in the study, 151 had a diagnosis of COVID-19. 70 healthy pregnant women were taken as the control group. It was observed that D-dimer values in pregnancy increased as the trimesters progressed. No significant difference was observed when this was compared with pregnant women with COVID-19 ($p = .428$, .75, .927 according to the 1st, 2nd and 3rd trimesters, respectively).

Conclusion

The diagnosis of pulmonary embolism is difficult due to the lack of reliable alternative D-dimer thresholds for pregnant patients. On the other hand, D-dimer elevation continues to be a sign of poor prognosis in patients with COVID-19. The situation remains uncertain in patients who are pregnant and have COVID-19. Maybe D-dimer value should be removed from being a poor prognosis criterion in pregnant women. (Author)

Full URL: https://doi.org/10.1080/14767058.2023.2231123

2023-07553

Can Prenatal Ultrasound Predict Adverse Neonatal Outcomes in SARS-CoV-2 Affected Pregnancies?. Mei JY, Mok T, Cambou MC, et al (2023), American Journal of Obstetrics & Gynecology MFM vol 5, no 9, September 2023, 101028

Background

Based on available data, at least one ultrasound assessment of pregnancies recovering from SARS-CoV-2 infection is recommended. Reports, however, on prenatal imaging findings and potential associations with neonatal outcomes following SARS-CoV-2 infection in pregnancy have been inconclusive.

Objective

We aim to describe the sonographic characteristics of pregnancies after confirmed SARS-CoV-2 infection and assess the association of prenatal ultrasound (US) findings with adverse neonatal outcomes (ANO).

Study Design

This is an observational prospective cohort study of pregnancies diagnosed with SARS-CoV-2 by reverse transcription polymerase chain reaction between March 2020 and May 2021. Prenatal US evaluation was performed at least once

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after diagnosis of infection with the following parameters measured: standard fetal biometric measurements, umbilical and middle cerebral artery Dopplers, placental thickness, amniotic fluid volume, and anatomic survey for infection-associated findings. The primary outcome was composite ANO, defined as one or more of the following: preterm birth, NICU admission, small for gestational age (SGA), respiratory distress, intrauterine fetal demise, neonatal demise, or other neonatal complications. Secondary outcomes were sonographic findings stratified by trimester of infection and severity of SARS-CoV-2 infection. Prenatal US findings were compared with neonatal outcomes, severity of infection, and trimester of infection.

Results

A total 103 SARS-CoV-2 affected mother-infant pairs with prenatal US evaluation were identified; 3 cases were excluded due to known major fetal anomalies. Of the 100 included cases, neonatal outcomes were available in 92 pregnancies (97 infants); of these, 28 (29%) had a composite ANO. Twenty-three (23%) had at least one abnormal prenatal US finding. The most common abnormalities seen on US were placentomegaly (11/23, 47.8%) and fetal growth restriction (FGR) (8/23, 34.8%). FGR was associated with a higher rate of a composite ANO (25% vs 1.5%; aOR: 22.67; 95% 95% CI, 2.63-194.91; p<0.001), even when SGA was removed from the composite ANO. Cochran-Mantel Haensel test controlling for possible FGR confounders continued to show this association (relative risk, 3.7; 95% confidence interval, 2.6-5.9; p<0.001). Median estimated fetal weight (EFW) and birthweight were lower in patients with a composite ANO (p<0.001). Infection in the third trimester was associated with lower median percentile of EFW (p=0.019). An association between placentomegaly and third trimester SARS CoV-2 infection was noted (p=0.045).

Conclusion

In our study of SARS-CoV-2 affected maternal-infant pairs, rates of FGR were comparable to the general population. However, composite ANO rates were high. Pregnancies with FGR after SARS-CoV-2 infection were associated with an increased risk for ANO and may require close surveillance. (Author)

Full URL: https://doi.org/10.1016/j.ajogmf.2023.101028

2023-07537

Delivery Outcomes in a Cohort of Pregnant Patients with COVID-19 With and Without Viral Pneumonia. DuBose B, Tembunde Y, Goodman KE, et al (2023), American Journal of Obstetrics & Gynecology MFM vol 5, no 10, October 2023, 101077

Background

Among pregnant people, coronavirus disease 2019 (COVID-19) can lead to adverse outcomes, but the specific pregnancy outcomes that are affected by the disease are unclear. In addition, the effect of the severity of COVID-19 on pregnancy outcomes has not been clearly identified.

Objective

To evaluate the associations between COVID-19 with and without viral pneumonia and cesarean delivery, preterm delivery, preeclampsia, and stillbirth.

Study Design

We conducted a retrospective cohort study (April 2020 – May 2021) of deliveries between 20 and 42 weeks of gestation from U.S. hospitals in the Premier Healthcare Database. The primary outcomes were cesarean delivery, preterm delivery, preeclampsia, and stillbirth. We used a viral pneumonia diagnosis (ICD-10-CM codes J12.8 and J12.9) to categorize patients by severity of COVID-19. Pregnancies were categorized into three groups, NOCOVID: No COVID-19, COVID: COVID-19 without viral pneumonia, and PNA: COVID-19 with viral pneumonia. Groups were balanced for risk factors by propensity score matching.

Results

814,649 deliveries from 853 U.S. hospitals were included (NOCOVID: n=799,132, COVID: n=14,744, PNA: n=773). After propensity score matching, the risks of cesarean delivery and preeclampsia were similar in the COVID group compared to the NOCOVID group (matched risk ratio [mRR] 0.97, 95% confidence interval [CI] 0.94-1.00, and mRR 1.02, 95% CI 0.96-1.07, respectively). The risks of preterm delivery and stillbirth were greater in the COVID group compared to the NOCOVID group (mRR 1.11, 95% CI 1.05-1.19, and mRR 1.30, 95% CI 1.01-1.66, respectively). The risks of cesarean delivery, preeclampsia, and preterm delivery were higher in the PNA group compared to COVID (mRR 1.76, 95% CI 1.53-2.03, mRR 1.37, 95% CI 1.08-1.74, and mRR 3.33, 95% CI 2.56-4.33, respectively). The risk of stillbirth was similar in the PNA group and COVID (mRR 1.17, 95% CI 0.40-3.44).

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Conclusions
Within a large national cohort of hospitalized pregnant people, we found that the risk of some adverse delivery outcomes was elevated in people with COVID-19 with and without viral pneumonia, with much higher risks in the group with viral pneumonia. (Author)
Full URL: https://doi.org/10.1016/j.ajogmf.2023.101077

2023-07498

Clinical characterisation and management outcome of obstetric patients following intensive care unit admission for COVID-19 pneumonia. Bıçak EA, Oğlak SC (2023), Journal of Obstetrics and Gynaecology vol 43, no 2, 2023, 2218915

This study aims to examine the clinical characteristics and mortality-related factors of obstetric patients, who were taken to the intensive care unit due to Coronavirus Disease 2019 (COVID-19). This study included 31 patients in the peripartum period with COVID-19 pneumonia, followed up in the intensive care unit (ICU) from March 2020 to December 2020. Symptoms, laboratory values, intensive care unit duration of stay, complications, the requirement of non-invasive and invasive mechanical ventilation, and mortality were recorded. The mean age was 30.7 ± 6.2 years and the mean gestational age was 31.1 ± 6.4 weeks. Among the patients, 25.8% had a fever, 87.1% had a cough, 96.8% had dyspnoea and 77.4% had tachypnoea. Seventeen patients (54.8%) had mild, 6 (19.4%) had moderate and 8 (25.8%) had severe pulmonary involvement on computed tomography. Sixteen (51.6%) patients required high-frequency oscillatory ventilation, 6 (19.3%) patients required continuous positive airway pressure, and 5 (16.1%) patients required invasive mechanical ventilation. Sepsis complicated by septic shock and multiorgan failure occurred in 4 patients and all of them died. The ICU duration of stay was 4.9 ± 4.3 days. We have found that older maternal age, obesity, high LDH, AST, ALT, ferritin, leukocyte, CRP, and procalcitonin values, and severe lung involvement were mortality-related factors.

Impact statement
What is already known on this subject? Pregnant women are in the high-risk group for Covid-19 disease and its complications. Although most pregnant women are asymptomatic, severe infection-related hypoxia can cause serious foetal and maternal problems.

What do the results of this study add? When we examined the literature, we found that the number of studies on pregnant women with severe Covid-19 infection was limited. For this reason, with our study results, we aim to contribute to the literature by determining the biochemical parameters and patient-related factors associated with severe infection and mortality in pregnant patients with severe Covid-19 infection.

What are the implications of these findings for clinical practice and/or further research? With our study results, predisposing factors for the development of severe Covid-19 infection in the pregnant patient population and biochemical parameters that are early indicators of severe infection were determined. In this way, pregnant women in the high-risk group can be followed closely and the necessary treatments can be started quickly so disease-related complications and mortality can be reduced. (Author)
Full URL: https://doi.org/10.1080/01443615.2023.2218915

2023-07469

Stalled global progress on preventable maternal deaths needs renewed focus and action. Menendez C, Nhampossa T, Gbeasor-Komlanvi DF, et al (2023), British Medical Journal 28 June 2023, online

Pandemic setbacks have compounded underinvestment as an obstacle to meeting the sustainable development goal on preventable maternal mortality, write Clara Menendez and colleagues. (Author)
Full URL: https://doi.org/10.1136/bmj.p1473

2023-07466

The impact of the COVID-19 pandemic on contraceptive methods, abortion, and unintended pregnancy: a

cross-sectional study. Rezaei F, Amiri-Farahani L, Haghani S, et al (2023), BMC Women's Health vol 23, no 357, July 2023

Background and Aim

By creating an international emergency, the COVID-19 pandemic may have led to compromised reproductive health care, including family planning services, and thus increased unintended pregnancies and unsafe abortions. This study was conducted to compare methods of contraception, abortion, and unintended pregnancies in those served by the health centers of Babol city in Iran, both before and during the COVID-19 pandemic.

Methods

A cross-sectional study was conducted including 425 participants registered to the health centers of Babol city, Mazandaran province, Iran. Using a multi-stage method, 6 urban health centers and 10 rural centers were selected for inclusion. Proportional allocation method was used for sampling those who met the inclusion criteria. A questionnaire was used to collect data in relation to individual characteristics and reproductive behaviors via 6 questions focused upon methods and preparation of contraception, number and type of abortions, and number and causes of unintended pregnancy from July to November 2021. The data were analyzed using SPSS software version 26. Significance level was considered to be $p < 0.05$ in all tests.

Results

Most participants aged between 20 and 29 years old had a diploma level of education, were housewives and lived in the city. Prior to the pandemic, 32.0% used modern contraceptive methods and 31.6% used these during the pandemic. No change in the combination of contraceptive methods used was observed between these two periods. Approximately two-thirds used the withdrawal method in both periods. The majority of participants in both periods purchased their contraceptives from a pharmacy. Unintended pregnancy increased from 20.4% prior to the pandemic to 25.4% during the pandemic. Abortions increased from 19.1% prior to the pandemic to 20.9% during the pandemic, although these findings were not found to be statistically significant. Contraceptive methods had a statistically significant relationship with age, education, spouse's education, spouse's occupation, and place of residence. The number of unintended pregnancies had a significant relationship with age, the educational level of both participants and their spouses and socio-economic status, and the number of abortions had a statistically significant relationship with the age and education level of the spouse ($p > 0.05$).

Conclusion

Despite there being no change in contraceptive methods compared to the pre-pandemic period, an increase in the number of unintended pregnancies, abortions and illegal abortions was observed. This may be indicative of an unmet need for family planning services during the COVID-19 pandemic. (Author)

Full URL: https://doi.org/10.1186/s12905-023-02512-y

2023-07167

Effect of Maternal Coronavirus Disease on Preterm Morbidities. Çıplak G, Becerir C, Sarı FN, et al (2023), American Journal of Perinatology 31 May 2023, online

Objective Coronavirus disease (COVID-19) during pregnancy may have an impact on preterm morbidities due to the inflammatory nature of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection. Exposure to intrauterine inflammation could result in adverse consequences in preterm infants. We aimed to determine the effect of maternal coronavirus disease on preterm morbidities at a tertiary neonatal intensive care unit.

Study Design This observational cohort study compared the clinical outcomes of preterm infants < 37 gestational weeks with and without maternal COVID-19. The study was conducted in a tertiary-level neonatal intensive care unit between March 2020 and December 2021. Demographics and clinical data of the study groups were collected from the medical files.

Results A total of 254 infants (127 in the maternal COVID-19 group and 127 in the control group) were included in the study. Respiratory distress syndrome, early and late neonatal sepsis, intraventricular hemorrhage, patent ductus

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arteriosus (PDA), necrotizing enterocolitis, bronchopulmonary dysplasia, and retinopathy of prematurity rates were similar between groups. In the subgroup analysis, the rate of PDA was significantly higher in preterm infants ≤1,500 g with maternal SARS-CoV-2 infection (38 vs. 15% p = 0.023). Presence of maternal COVID-19 was found to be an independent predictor for PDA in very low birthweight infants, as revealed by multivariate analyses (odds ratio: 3.4; 95% confidence interval: 1.12–10.4; p = 0.031). Mortality rates and duration of hospitalization were similar in both groups.

Conclusion Our results suggest that COVID-19 infection during pregnancy seems to have no adverse effect on preterm morbidities and mortality. However, maternal COVID-19 was found to be a risk factor for PDA in preterm infants ≤1,500 g. (Author)

2023-07050

A critical review of COVID-19 course and vaccination in dermatology patients on immunomodulatory/biologic therapy: recommendations should not differ between non-pregnant and pregnant individuals. Messas T, Lim RK, Burns L, et al (2023), Frontiers in Medicine 2 June 2023, online

COVID-19 can have detrimental effects on immunosuppressed patients. Here, we evaluate the evidence regarding continuing immunomodulatory/biologic (IMBI) therapy in pregnant dermatology patients during the COVID-19 pandemic. Also, we discuss the risks of COVID-19 vaccination in pregnant dermatology patients on IMBI therapy. As indicated in this review, regarding continuing IMBI therapy in pregnant dermatology patients during the pandemic, there is no compelling reason for treating them differently than non-pregnant. The body of evidence indicates that mRNA COVID-19 vaccines are safe during pregnancy. Studies on rheumatology patients, a group that overlaps significantly with the dermatology group, provided essential findings. IMBI in a non-pregnant rheumatology patient was not associated with COVID-19 mortality (except for rituximab), and vaccination of the rheumatology patient during pregnancy improved the obstetric outcomes compared to the unvaccinated patient. Based on this data, it can be stated that after weighing the benefit–risk profile of the available COVID-19 vaccines, the recommendation for the pregnant dermatology patient speaks in favor of the COVID-19 vaccination. COVID-19 vaccine recommendations in pregnant dermatology patients on IMBI should not differ from those for their non-pregnant counterparts. (Author)

Full URL: https://doi.org/10.3389/fmed.2023.1121025

2023-06819

Women's experience of perinatal support in a high migrant Australian population during the COVID-19 pandemic: a mixed methods study. Melov SJ, Galas N, Swain J, et al (2023), BMC Pregnancy and Childbirth vol 23, no 429, June 2023

Background

As a COVID-19 risk mitigation measure, Australia closed its international borders for two years with significant socioeconomic disruption including impacting approximately 30% of the Australian population who are migrants. Migrant populations during the peripartum often rely on overseas relatives visiting for social support. High quality social support is known to lead to improved health outcomes with disruption to support a recognised health risk.

Aim

To explore women's experience of peripartum social support during the COVID-19 pandemic in a high migrant population. To quantify type and frequency of support to identify characteristics of vulnerable perinatal populations for future pandemic preparedness.

Methods

A mixed methods study with semi-structured interviews and a quantitative survey was conducted from October 2020 to April 2021. A thematic approach was used for analysis.

Results

There were 24 participants interviewed both antenatally and postnatally (22 antenatal; 18 postnatal). Fourteen

women were migrants and 10 Australian born. Main themes included; 'Significant disruption and loss of peripartum support during the COVID-19 pandemic and ongoing impact for migrant women'; 'Husbands/partners filling the support gap' and 'Holding on by a virtual thread'. Half of the participants felt unsupported antenatally. For Australian born women, this dissipated postnatally, but migrants continued to feel unsupported. Migrant women discussed partners stepped into traditional roles and duties of absent mothers and mothers-in-law who were only available virtually.

Conclusion
This study identified disrupted social support for migrant women during the pandemic, providing further evidence that the pandemic has disproportionately impacted migrant populations. However, the benefits identified in this study included high use of virtual support, which could be leveraged for improving clinical care in the present and in future pandemics. The COVID-19 pandemic impacted most women's peripartum social support with migrant families having ongoing disruption. Gains in the pandemic included greater gender equity for domestic work as husbands/partners increased their contribution to domestic work and childcare. (Author)
Full URL: https://doi.org/10.1186/s12884-023-05745-9

2023-06722

Influence of maternal psychological distress during COVID-19 pandemic on placental morphometry and texture. Saeed H, Lu Y-C, Andescavage N, et al (2023), Scientific Reports 10 May 2023, online

The Coronavirus Disease 2019 (COVID-19) pandemic has been accompanied by increased prenatal maternal distress (PMD). PMD is associated with adverse pregnancy outcomes which may be mediated by the placenta. However, the potential impact of the pandemic on in vivo placental development remains unknown. To examine the impact of the pandemic and PMD on in vivo structural placental development using advanced magnetic resonance imaging (MRI), acquired anatomic images of the placenta from 63 pregnant women without known COVID-19 exposure during the pandemic and 165 pre-pandemic controls. Measures of placental morphometry and texture were extracted. PMD was determined from validated questionnaires. Generalized estimating equations were utilized to compare differences in PMD placental features between COVID-era and pre-pandemic cohorts. Maternal stress and depression scores were significantly higher in the pandemic cohort. Placental volume, thickness, gray level kurtosis, skewness and run length non-uniformity were increased in the pandemic cohort, while placental elongation, mean gray level and long run emphasis were decreased. PMD was a mediator of the association between pandemic status and placental features. Altered in vivo placental structure during the pandemic suggests an underappreciated link between disturbances in maternal environment and perturbed placental development. The long-term impact on offspring is currently under investigation. (Author, edited)
Full URL: https://doi.org/10.1038/s41598-023-33343-4

2023-06513

Pregnancy outcomes in patients with suspected SARS-CoV-2 infection prior to delivery. Berry M, Wang AM, Moutos CP, et al (2023), American Journal of Obstetrics & Gynecology MFM vol 5, no 8, August 2023, 101044

This is a research letter detailing original research. This retrospective cohort study aimed to evaluate outcomes in patients with prior COVID-`9 infection, as evidence by positive antibody screening, that usual testing eligibility criteria would not have detected. (JM)
Full URL: https://doi.org/10.1016/j.ajogmf.2023.101044

2023-06506

Statewide assessment of telehealth use for obstetrical care during the COVID-19 pandemic. Mallampati DP, Talati AN, Fitzhugh C, et al (2023), American Journal of Obstetrics & Gynecology MFM vol 5, no 6, June 2023, 100941

BACKGROUND
The COVID-19 pandemic started a period of rapid transition to telehealth in obstetrical care delivery to maintain social distancing and curb the spread of the virus. The use of telehealth, such as telephone and video visits, remote imaging

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interpretation, and provider-to-provider consultations, increased in the early months of the pandemic to maintain access to prenatal and postpartum care. Although there is considerable literature on the use of telehealth in obstetrical care, there are limited data on widespread telehealth use among different practice types and patient populations during the pandemic and whether these are preferred technologies.

OBJECTIVE

This study aimed to describe variations in telehealth use for obstetrical care among practices in North Carolina during the COVID-19 pandemic and to outline future preferences and needs for continued telehealth use. This study also aimed to delineate telehealth use among rural and micropolitan and metropolitan practices to better understand if telehealth use varied by practice location.

STUDY DESIGN

A web-based survey was distributed to practice managers of obstetrical practices in North Carolina from June 14, 2020 to September 14, 2020. Practice managers were contacted through assistance of the Community Care of North Carolina Pregnancy Medical Home program. Practice location was defined as rural, micropolitan, or metropolitan based on the county population. The survey assessed telehealth use before and during the COVID-19 pandemic, types of modalities used, and preferences for future use. Descriptive statistics were performed to describe survey responses and compare them by practice location.

RESULTS

A total of 295 practice managers were sent a web-based survey and 98 practice managers responded. Responding practices represented 66 of 100 counties in North Carolina with 50 practices from rural and micropolitan counties and 48 practices from metropolitan counties. The most common type of provider reported by practice managers were general obstetrician and gynecologists (85%), and the most common practice type was county health departments (38%). Overall, 9% of practices reported telehealth use before the pandemic and 60% reported telehealth use during the pandemic. The most common type of telehealth modality was telephone visits. There were no significant differences in the uptake of telehealth or in the modalities used by practice location.

A total of 40% of practices endorsed a preference for continued telehealth use beyond the COVID-19 pandemic. The most commonly reported need for continuation of telehealth use was assistance with patient access to telehealth technologies (54%). There were no significant differences in the preferences for telehealth continuation or future needs by practice location.

CONCLUSION

Telehealth use increased among a variety of practice types during the pandemic with no variation observed by practice location in terms of modalities used, future preferences, or needs. This study assessed statewide uptake of and differences in obstetrical telehealth use during the early COVID-19 pandemic. With telehealth becoming an integral part of obstetrical care delivery, this survey has implications for anticipating the needs of practices and designing innovative solutions for providers and pregnant people beyond the COVID-19 pandemic. (Author)

2023-06415

Medically Attended Acute Adverse Events in Pregnant People After Coronavirus Disease 2019 (COVID-19) Booster Vaccination. DeSilva MB, Haapala J, Vazquez-Benitez G, et al (2023), Obstetrics & Gynecology vol 142, no 1, July 2023, pp 125-129

In this multisite, observational, matched cohort study of more than 80,000 pregnant people, receipt of an mRNA monovalent coronavirus disease 2019 (COVID-19) booster vaccination in pregnancy was not associated with increased risk for thrombocytopenia, myocarditis, venous thromboembolism, ischemic stroke, or other serious adverse events within 21 or 42 days after booster vaccination. The mRNA monovalent COVID-19 booster in pregnancy was associated with an increased risk for medically attended malaise or fatigue within 7 days of vaccination (adjusted rate ratio [aRR] 3.64, 95% CI 2.42–5.48) and lymphadenopathy or lymphadenitis within 21 days (aRR 3.25, 95% CI 1.67–6.30) or 42 days (aRR 2.18, 95% CI 1.33–3.58) of vaccination. Our findings are consistent with prior evaluations of the primary COVID-19 vaccine series and are reassuring with respect to COVID-19 booster vaccination in pregnancy. (Author)

2023-06407

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Antibody Titer Levels in Pregnant Individuals After

Infection, Vaccination, or Both. Marshall CL, Kaplowitz E, Ibroci E, et al (2023), Obstetrics & Gynecology vol 141, no 6, June 2023, pp. 1199-1202

We examined differences in severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) antibody responses in pregnant individuals with natural, vaccine-induced, or combined immunity. Participants had live or nonlive births between 2020 and 2022, were seropositive (SARS-CoV-2 spike protein, anti-S), and had available mRNA vaccination and infection information (n=260). We compared titer levels among three immunity profiles: 1) natural immunity (n=191), 2) vaccine-induced immunity (n=37), and 3) combined immunity (ie, natural and vaccine-induced immunity; n=32). We applied linear regression to compare anti-S titers between the groups, controlling for age, race and ethnicity, and time between vaccination or infection (whichever came last) and sample collection. Anti-S titers were 57.3% and 94.4% lower among those with vaccine-induced and natural immunity, respectively, compared with those with combined immunity (P<.001, P=.005). (Author)

2023-06404

The Temporal Relationship Between the Coronavirus Disease 2019 (COVID-19) Pandemic and Preterm Birth. Grobman WA, Sandoval GJ, Metz TD, et al (2023), Obstetrics & Gynecology vol 141, no 6, June 2023, pp. 1171-1180

OBJECTIVE:

To evaluate whether preterm birth rates changed in relation to the onset of the coronavirus disease 2019 (COVID-19) pandemic and whether any change depended on socioeconomic status.

METHODS:

This is an observational cohort study of pregnant individuals with a singleton gestation who delivered in the years 2019 and 2020 at 1 of 16 U.S. hospitals of the Maternal-Fetal Medicine Units Network. The frequency of preterm birth for those who delivered before the onset of the COVID-19 pandemic (ie, in 2019) was compared with that of those who delivered after its onset (ie, in 2020). Interaction analyses were performed for people of different individual- and community-level socioeconomic characteristics (ie, race and ethnicity, insurance status, Social Vulnerability Index (SVI) of a person's residence).

RESULTS:

During 2019 and 2020, 18,526 individuals met inclusion criteria. The chance of preterm birth before the COVID-19 pandemic was similar to that after the onset of the pandemic (11.7% vs 12.5%, adjusted relative risk 0.94, 95% CI 0.86–1.03). In interaction analyses, race and ethnicity, insurance status, and the SVI did not modify the association between the epoch and the chance of preterm birth before 37 weeks of gestation (all interaction P>.05).

CONCLUSION:

There was no statistically significant difference in preterm birth rates in relation to the COVID-19 pandemic onset. This lack of association was largely independent of socioeconomic indicators such as race and ethnicity, insurance status, or SVI of the residential community in which an individual lived. (Author)

2023-06197

Impact of COVID-19 mandatory lockdown on maternal gestational weight gain and neonatal macrosomia rate at an academic medical center in Israel. Benyamini Raischer H, Garmi G, Malchi D, et al (2023), Journal of Maternal-Fetal and Neonatal Medicine vol 36, no 1, 2023, 2204391

Background

In an effort to prevent the spread of coronavirus disease 2019 (COVID-19), governments restricted outdoor activities and imposed lockdown quarantine. This change in lifestyle probably affected individuals' eating habits and physical activity.

Objective

To examine the effect of lockdown due to the COVID-19 pandemic on maternal antenatal weight gain, neonatal

macrosomia, and other maternal and neonatal outcomes of women delivering at an academic medical center in Israel.

Method
A retrospective, two-period cohort study conducted at a university teaching medical center in Afula, Israel. The study period was between April and September 2020. This period signifies worsening in pandemic situations, during which citizens experienced strict prolonged lockdown measures. The parallel unexposed period (control period) was between April and September 2019. Singleton pregnancies delivered at >24 weeks were eligible. Primary outcome was incidence of macrosomia. Secondary outcomes included gestational weight gain, body mass index (BMI) at delivery, rates of gestational diabetes mellitus (GDM), mode of delivery, postpartum hemorrhage (PPH), and neonatal outcomes reflecting neonatal birth weight and condition at delivery.

Results
A total of 4,765 women were included, 2,442 in the study group and 2,323 in the control group. The incidence of macrosomia was significantly higher in 2020 (6.2%) than in 2019 (4.9%), (p = .048; OR: 1.29; 95% CI: 1.002– 1.65). Women gained significantly more weight (median 1 kg more), weighed more at delivery (median 1 kg), and had higher BMI at delivery in 2020 compared with those in 2019 (p < .01). The incidence of GDM was 9.5% and 8.5% in the study and control groups respectively (p = .26; OR: 1.12; 95% CI: 0.92–1.37). Greater percentage of women did not perform the glucose challenge test in 2020 (9.9%) compared with those in 2019 (7.5%) (p = .003, OR: 1.36; 95% CI: 1.11–1.67). The incidence of any hypertension related to pregnancy was significantly higher in 2020 compared to 2019 (5.8% vs 4.4% respectively, (p = .042; OR: 1.32; 95% CI: 1.02–1.71). The proportion of women who smoked during pregnancy was also significantly higher in 2020 than in 2019 (5.1% vs 3.7%, respectively, p = .02; OR: 1.40; 95% CI: 1.06–1.86). Delivery mode did not differ, while the incidence of PPH was significantly higher in 2020 than in 2019 (5.6% vs 3.4%, respectively, p = .001; OR: 1.65; 95% CI: 1.25–2.19). Neonatal condition at delivery was comparable.

Conclusion
COVID-19-related lockdown was associated with the increased rate of macrosomic infants. This indirect effect of the pandemic is probably related to poorer maternal antenatal metabolic health status. Long-term consequences should be further examined. (Author)
Full URL: https://doi.org/10.1080/14767058.2023.2204391

2023-06185

Maternal SARS-COV-2 infection and prematurity: the Southern Michigan COVID-19 collaborative. Bahado-Singh R, Tarca AL, Hasbini YG, et al (2023), Journal of Maternal-Fetal and Neonatal Medicine vol 36, no 1, 2023, 2199343

Objective
COVID-19 has been reported to increase the risk of prematurity, however, due to the frequent absence of unaffected controls as well as inadequate accounting for confounders in many studies, the question requires further investigation. We sought to determine the impact of COVID-19 disease on preterm birth (PTB) overall, as well as related subcategories such as early prematurity, spontaneous, medically indicated preterm birth, and preterm labor (PTL). We assessed the impact of confounders such as COVID-19 risk factors, a-priori risk factors for PTB, symptomatology, and disease severity on rates of prematurity.

Methods
This was a retrospective cohort study of pregnant women from March 2020 till October 1st, 2020. The study included patients from 14 obstetric centers in Michigan, USA. Cases were defined as women diagnosed with COVID-19 at any point during their pregnancy. Cases were matched with uninfected women who delivered in the same unit, within 30 d of the delivery of the index case. Outcomes of interest were frequencies of prematurity overall and subcategories of preterm birth (early, spontaneous/medically indicated, preterm labor, and premature preterm rupture of membranes) in cases compared to controls. The impact of modifiers of these outcomes was documented with extensive control for potential confounders. A p value <.05 was used to infer significance.

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Results

The rate of prematurity was 8.9% in controls, 9.4% in asymptomatic cases, 26.5% in symptomatic COVID-19 cases, and 58.8% among cases admitted to the ICU. Gestational age at delivery was noted to decrease with disease severity. Cases were at an increased risk of prematurity overall [adjusted relative risk (aRR) = 1.62 (1.2–2.18)] and of early prematurity (<34 weeks) [aRR = 1.8 (1.02–3.16)] when compared to controls. Medically indicated prematurity related to preeclampsia [aRR = 2.46 (1.47–4.12)] or other indications [aRR = 2.32 (1.12–4.79)], were the primary drivers of overall prematurity risk. Symptomatic cases were at an increased risk of preterm labor [aRR = 1.74 (1.04–2.8)] and spontaneous preterm birth due to premature preterm rupture of membranes [aRR = 2.2(1.05–4.55)] when compared to controls and asymptomatic cases combined. The gestational age at delivery followed a dose-response relation with disease severity, as more severe cases tended to deliver earlier (Wilcoxon $p < .05$).

Conclusions

COVID-19 is an independent risk factor for preterm birth. The increased preterm birth rate in COVID-19 was primarily driven by medically indicated delivery, with preeclampsia as the principal risk factor. Symptomatic status and disease severity were significant drivers of preterm birth. (Author)

Full URL: https://doi.org/10.1080/14767058.2023.2199343

2023-06127

Comparison between the demographic shift clinical severity and outcome of the first two waves of COVID-19 in pregnancy in a tertiary hospital in India. Lenin A, Abraham K, David LS, et al (2023), International Journal of Gynecology & Obstetrics vol 163, no 2, November 2023, pp 586-593

Objective

To study and compare the maternal and neonatal outcomes of COVID-19 in pregnancy during the two waves of the pandemic in India.

Methods

This observational, retrospective cohort study on pregnant women with SARS-CoV-2 infection was conducted in a 2700-bed tertiary referral center in South India from March 1, 2020 to June 30 2021. The clinical presentation, severity, and maternal and neonatal outcomes of COVID-19 were compared between the two waves.

Results

A total of 623 pregnant women tested positive for SARS-CoV-2 infection in our institute; 379 (60.8%) were diagnosed during the first wave and 244 (39.2%) in the second wave. Most of the affected women (81.1%) were in their third trimester. Maternal mortality rate was 823 per 100 000 live births. Composite maternal outcome (increasing requirement for ventilation, pulmonary embolism, disease progression) were more pronounced during the second wave (2.1% vs 6.1%). Between the two waves, both maternal (1 vs 3; $P = 0.162$) and perinatal (3.2% vs 6.7%; $P = 0.065$) deaths were higher during the second wave. The cesarean section rate was high during the first wave (48% vs 32.4%; $P < 0.001$). Preterm births were comparable between the two waves (19.5% vs 22%; $P < 0.500$).

Conclusion

The women presented with more severe illness during the second wave of COVID-19. There was higher perinatal mortality, but the maternal mortality was similar between the two waves. (Author)

2023-06080

Routine placental histopathology findings from women testing positive for SARS-CoV-2 during pregnancy: Retrospective cohort comparative study. Colley CS, Hutchinson JC, Whitten SM, et al (2023), BJOG: An International Journal of Obstetrics and Gynaecology vol 130, no 8, July 2023, pp 959-967

Objective

To assess the impact of maternal Coronavirus disease 2019 (COVID-19) infection on placental histopathological

findings in an unselected population and evaluate the potential effect on the fetus, including the possibility of vertical transmission of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).

Design
Retrospective cohort comparative study of placental histopathological findings in patients with COVID-19, compared with controls.

Setting
During the COVID-19 pandemic, placentas were studied from women at University College Hospital London who reported and/or tested positive for COVID-19.

Population
Of 10 508 deliveries, 369 (3.5%) women had COVID-19 during pregnancy, with placental histopathology available for 244 women.

Methods
Retrospective review of maternal and neonatal characteristics, where placental analysis had been performed. This was compared with available, previously published, histopathological findings from placentas of unselected women.

Main outcome measures
Frequency of placental histopathological findings and relevant clinical outcomes.

Results
Histological abnormalities were reported in 117 of 244 (47.95%) cases, with the most common diagnosis being ascending maternal genital tract infection. There was no statistically significant difference in the frequency of most abnormalities compared with controls. There were four cases of COVID-19 placentitis (1.52%, 95% CI 0.04%–3.00%) and one possible congenital infection, with placental findings of acute maternal genital tract infection. The rate of fetal vascular malperfusion (FVM), at 4.5%, was higher compared with controls (p = 0.00044).

Conclusions
In most cases, placentas from pregnant women infected with SARS-CoV-2 virus do not show a significantly increased frequency of pathology. Evidence for transplacental transmission of SARS-CoV-2 is lacking from this cohort. There is a need for further study into the association between FVM, infection and diabetes. (Author)
Full URL: https://doi.org/10.1111/1471-0528.17476

2023-06073

Trends in Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) infection and vaccine antibody prevalence in a multi-ethnic inner-city antenatal population: A cross-sectional surveillance study. Andreeva D, Gill C, Brockbank A, et al (2023), BJOG: An International Journal of Obstetrics and Gynaecology vol 130, no 9, August 2023, pp 1135-1144

Objective
To determine severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) seroprevalence in pregnancy in an inner-city setting and assess associations with demographic factors and vaccination timing.

Design
Repeated cross-sectional surveillance study.

Setting
London maternity centre.

Sample

A total of 906 pregnant women attending nuchal scans, July 2020–January 2022.

Methods
Blood samples were tested for IgG antibodies against SARS-CoV-2 nucleocapsid (N) and spike (S) proteins. Self-reported vaccination status and coronavirus disease 2019 (COVID-19) infection were recorded. Multivariable regression models determined demographic factors associated with seroprevalence and antibody titres.

Main outcome measures
Immunoglobulin G N- and S-protein antibody titres.

Results
Of the 960 women, 196 (20.4%) were SARS-CoV-2 seropositive from previous infection. Of these, 70 (35.7%) self-reported previous infection. Among unvaccinated women, women of black ethnic backgrounds were most likely to be SARS-CoV-2 seropositive (versus white adjusted risk ratio [aRR] 1.88, 95% CI 1.35–2.61, $p < 0.001$). Women from black and mixed ethnic backgrounds were least likely to have a history of vaccination with seropositivity to S-protein (versus white aRR 0.58, 95% CI 0.40–0.84, $p = 0.004$; aRR 0.56, 95% CI 0.34–0.92, $p = 0.021$, respectively). Double vaccinated, previously infected women had higher IgG S-protein antibody titres than unvaccinated, previously infected women (mean difference 4.76 fold-change, 95% CI 2.65–6.86, $p < 0.001$). Vaccination timing before versus during pregnancy did not affect IgG S-antibody titres (mean difference −0.28 fold-change, 95% CI −2.61 to 2.04, $p = 0.785$).

Conclusions
This cross-sectional study demonstrates high rates of asymptomatic SARS-CoV-2 infection with women of black ethnic backgrounds having higher infection risk and lower vaccine uptake. SARS-CoV-2 antibody titres were highest among double-vaccinated, infected women. (Author)
Full URL: https://doi.org/10.1111/1471-0528.17508

2023-06022
Outcomes Following Extracorporeal Membrane Oxygenation for Severe COVID-19 in Pregnancy or Post Partum. Byrne JJ, Shamshirsaz AA, Cahill AG, et al (2023), JAMA Network Open vol 6, no 5, May 2023, e2314678
Importance Existing reports of pregnant patients with COVID-19 disease who require extracorporeal membrane oxygenation (ECMO) are limited, with variable outcomes noted for the maternal-fetal dyad.

Objective To examine maternal and perinatal outcomes associated with ECMO used for COVID-19 with respiratory failure during pregnancy.

Design, Setting, and Participants This retrospective multicenter cohort study examined pregnant and postpartum patients who required ECMO for COVID-19 respiratory failure at 25 hospitals across the US. Eligible patients included individuals who received care at one of the study sites, were diagnosed with SARS-CoV-2 infection during pregnancy or up to 6 weeks post partum by positive nucleic acid or antigen test, and for whom ECMO was initiated for respiratory failure from March 1, 2020, to October 1, 2022.

Exposures ECMO in the setting of COVID-19 respiratory failure.

Main outcome and measures The primary outcome was maternal mortality. Secondary outcomes included serious maternal morbidity, obstetrical outcomes, and neonatal outcomes. Outcomes were compared by timing of infection during pregnancy or post partum, timing of ECMO initiation during pregnancy or post partum, and periods of circulation of SARS-CoV-2 variants.

Results From March 1, 2020, to October 1, 2022, 100 pregnant or postpartum individuals were started on ECMO (29

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[29.0%] Hispanic, 25 [25.0%] non-Hispanic Black, 34 [34.0%] non-Hispanic White; mean [SD] age: 31.1 [5.5] years), including 47 (47.0%) during pregnancy, 21 (21.0%) within 24 hours post partum, and 32 (32.0%) between 24 hours and 6 weeks post partum; 79 (79.0%) had obesity, 61 (61.0%) had public or no insurance, and 67 (67.0%) did not have an immunocompromising condition. The median (IQR) ECMO run was 20 (9-49) days. There were 16 maternal deaths (16.0%; 95% CI, 8.2%-23.8%) in the study cohort, and 76 patients (76.0%; 95% CI, 58.9%-93.1%) had 1 or more serious maternal morbidity events. The largest serious maternal morbidity was venous thromboembolism and occurred in 39 patients (39.0%), which was similar across ECMO timing (40.4% pregnant [19 of 47] vs 38.1% [8 of 21] immediately postpartum vs 37.5% postpartum [12 of 32]; P > .99).

Conclusions and Relevance In this multicenter US cohort study of pregnant and postpartum patients who required ECMO for COVID-19–associated respiratory failure, most survived but experienced a high frequency of serious maternal morbidity. (Author)

Full URL: https://doi.org/10.1001/jamanetworkopen.2023.14678

2023-05989

Fertility and contraceptive dynamics amidst COVID-19: who is at greatest risk for unintended pregnancy among a cohort of adolescents and young adults in Nairobi, Kenya?. Wood SN, Byrne ME, Thiongo M, et al (2023), BMJ Open vol 13, no 5, May 2023

Objectives Among youth in Nairobi, we (1) characterised fertility and contraceptive use dynamics by gender; (2) estimated pregnancy prevalence over the pandemic; and (3) assessed factors associated with unintended pandemic pregnancy for young women.

Design Longitudinal analyses use cohort data collected at three timepoints prior to and during the COVID-19 pandemic: June to August 2019 (pre-pandemic), August to October 2020 (12-month follow-up) and April to May 2021 (18-month follow-up).

Setting Nairobi, Kenya.

Participants At initial cohort recruitment, eligible youth were aged 15–24 years, unmarried and residing in Nairobi for at least 1 year. Within-timepoint analyses were restricted to participants with survey data per round; trend and prospective analyses were restricted to those with complete data at all three timepoints (n=586 young men, n=589 young women).

Primary and secondary outcome measures Primary outcomes comprised fertility and contraceptive use for both genders, and pregnancy for young women. Unintended pandemic pregnancy (assessed at 18-month follow-up) was defined as a current or past 6-month pregnancy with intent to delay pregnancy for more than 1 year at 2020 survey.

Results While fertility intentions remained stable, contraceptive dynamics varied by gender—young men both adopted and discontinued coital-dependent methods, whereas young women adopted coital-dependent or short-acting methods at 12-month follow-up (2020). Current pregnancy was highest at 2020 (4.8%), and approximately 2% at 2019 and 2021. Unintended pandemic pregnancy prevalence was 6.1%, with increased odds for young women recently married (adjusted OR (aOR)=3.79; 95% confidence interval (CI) 1.83–7.86); recent contraceptive use was protective against unintended pandemic pregnancy (aOR=0.23; 95% CI 0.11–0.47).

Conclusions Current pregnancy in Nairobi was highest at the height of the COVID-19 pandemic (2020), and subsided to pre-pandemic levels by 2021 data collection; however, requires further monitoring. New marriages posed considerable risk for unintended pandemic pregnancy. Contraceptive use remains a crucial preventive strategy to averting unintended pregnancy, particularly for married young women. (Author)

Full URL: http://dx.doi.org/10.1136/bmjopen-2022-068689

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2023-05965

Factors associated with having COVID-19 among unvaccinated pregnant and non-pregnant women in Metro Manila, Philippines: a multicentre longitudinal cohort study. Llamas-Clark EF, Heralde FM, Lumandas MU, et al (2023), BMJ Open vol 13, no 4, April 2023

Objective To determine the potential risk factors associated with having COVID-19 among unvaccinated pregnant and non-pregnant women.

Design A multicentre prospective cohort study among eligible women in Metro Manila, Philippines, from 2020 to 2022.

Setting Five national and local hospital research sites altogether recruited and screened 500 consenting eligible individuals.

Participants Pregnant and non-pregnant participants meeting the eligibility criteria were admitted for a reverse-transcription PCR determination of SARS-CoV-2, pregnancy testing and ultrasound, and an interview with an administered questionnaire.

Exposures Primary exposure was pregnancy; secondary exposures involve sociodemographic, lifestyle and obstetric-gynaecologic factors.

Outcome measure Outcome being measured was COVID-19 status.

Results The significant COVID-19 risk factors were: pregnancy (PR=1.184, 95% CI 1.096, 1.279), having a white-collar job (PR=1.123, 95% CI 1.02, 1.235), travelling abroad (PR=1.369, 95% CI 1.083, 1.173) and being infected by at least one vaccine-preventable disease (VPD) (PR=1.208, 95% CI 1.113, 1.310). Protective factors included having graduate-level education (PR=0.787, 95% CI 0.649, 0.954), immunisation against a VPD (PR=0.795, 95% CI 0.733, 0.862) and practising contraception (PR=0.889, 95% CI 0.824, 0.960).

Conclusion This study is the first in the country to determine the risks influencing COVID-19 infection among unvaccinated pregnant and non-pregnant women. Pregnancy is a significant risk for COVID-19 among women in Metro Manila. Educational attainment and positive health behaviours seem to confer protection. Occupations and activities that increase the frequency of interactions, as well as history of communicable diseases may predispose women to COVID-19. Further studies are needed to elucidate the development of the disease in pregnant women, including the maternal and neonatal effects of COVID-19 via potential vertical mechanisms of transmission. (Author)

Full URL: http://dx.doi.org/10.1136/bmjopen-2022-070688

2023-05909

Risk factors and clinical manifestations of COVID-19 in pregnant women in Indonesia. Rahayu HSE, Wijayanti K, Anggraeni MD, et al (2023), British Journal of Midwifery vol 31, no 4, April 2023

Background/Aims

Pregnant women are at higher risk for severe illness from COVID-19 than non-pregnant women. Research investigating risk factors and clinical manifestations of COVID-19 in pregnant women is limited in Indonesia. Therefore, this study's aim was to investigate these clinical issues.

Methods

For this observational cross-sectional study, data were collected from Merah Putih Government Hospital. A total of 106 medical records were analysed using descriptive statistics and Pearson's Chi-squared test, to examine differences in risk factors or clinical manifestations in pregnant women with or without COVID-19.

Results

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There were no significant differences between the two groups in terms of risk factors such as diabetes, bronchial asthma and cardiovascular disease. There were significant differences between the groups for clinical manifestations of fever, cough, dyspnea, ageusia, rapid antigen test and lymphocytopenia.

Conclusions
Coordinated care strategies should be initiated, particularly in the assessment of vulnerable pregnant women. Future pandemic preparedness studies should be considered to improve and protect maternal and child health in Indonesia. (Author)

2023-05878

Outpatient Use of Monoclonal Antibodies Casirivimab and Imdevimab in Pregnancy for Mild-to-Moderate Coronavirus Disease 2019. Buonomo AR, Filippo ID, Esposito N, et al (2023), American Journal of Perinatology 18 April 2023, online

Objective The aim of this study was to report the use casirivimab/imdevimab therapy in pregnant women with moderate coronavirus disease 2019 (COVID-19).

Study Design We report 12 cases of unvaccinated pregnant patients with mild-to-moderate COVID-19 treated with casirivimab/imdevimab.

Results Twelve unvaccinated pregnant patients with mild-to-moderate COVID-19 received casirivimab/imdevimab at the dose of 1200/1200 mg by intravenous infusion over 60 minutes. All women were managed outpatient. None experienced severe adverse drug reaction and none progressed to severe disease.

Conclusion Casirivimab/imdevimab should be considered for outpatient treatment of unvaccinated pregnant women with mild-to-moderate COVID-19 to decrease the risk of severe disease. (Author)

2023-05732

Indirect effects of the COVID-19 pandemic on risk of gestational diabetes and factors contributing to increased risk in a multiethnic population: a retrospective cohort study. Rhou YJJ, Elhindi J, Melov SJ, et al (2023), BMC Pregnancy and Childbirth vol 23, no 341, May 2023

Background
The COVID-19 pandemic has had indirect effects on pregnancy outcomes. There is limited data on the impact on gestational diabetes (GDM) in diverse populations and the possible underlying mediators. This study aimed to assess the risk of GDM pre-COVID-19 and in two distinct pandemic exposure periods, and to determine the potential factors contributing to increased risk in a multiethnic population.

Methods
A multicentre, retrospective cohort study was performed of women with singleton pregnancy receiving antenatal care at three hospitals two years pre-COVID-19 (January 2018 – January 2020), first year of COVID-19 with limited pandemic-mitigating restrictions (February 2020 – January 2021) and second year of COVID-19 with stringent restrictions (February 2021 – January 2022). Baseline maternal characteristics and gestational weight gain (GWG) were compared between cohorts. The primary outcome was GDM, assessed using univariate and multivariate generalised estimating equations models.

Results
28,207 pregnancies met the inclusion criteria, 14,663 pregnancies two years pre-COVID-19, 6,890 in COVID-19 Year 1 and 6,654 in COVID-19 Year 2. Maternal age increased across exposure periods (30.7 ± 5.0 years pre-COVID-19 vs 31.0 ± 5.0 years COVID-19 Year 1 vs 31.3 ± 5 years COVID-19 Year 2; $p < 0.001$). There were increases in pre-pregnancy body mass index (BMI) (25.5 ± 5.7 kg/m2 vs 25.7 ± 5.6 kg/m2 vs 26.1 ± 5.7 kg/m2; $p < 0.001$), proportion who were obese

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(17.5% vs 18.1% vs 20.7%; p < 0.001) and proportion with other traditional risk factors for GDM including South Asian ethnicity and prior history of GDM. Rate of GWG and proportion exceeding recommended GWG increased with pandemic exposure (64.3% vs 66.0% vs 66.6%; p = 0.009). GDM diagnosis increased across exposure periods (21.2% vs 22.9% vs 24.8%; p < 0.001). Both pandemic exposure periods were associated with increased risk of GDM on univariate analysis, only COVID-19 Year 2 remaining significantly associated after adjusting for maternal baseline characteristics and GWG (OR 1.17 [1.06, 1.28], p = 0.01).

Conclusions

Diagnosis of GDM increased with pandemic exposure. Progressive sociodemographic changes and greater GWG may have contributed to increased risk. However, exposure to the second year of COVID-19 remained independently associated with GDM after adjusting for shifts in maternal characteristics and GWG. (Author)

Full URL: https://doi.org/10.1186/s12884-023-05659-6

2023-05712

Fetal death as an outcome of acute respiratory distress in pregnancy, during the COVID-19 pandemic: a population-based cohort study in Bahia, Brazil. Carvalho-Sauer R, Flores-Ortiz R, Costa MDCN, et al (2023), BMC Pregnancy and Childbirth vol 23, no 320, May 2023

Background

Fetal loss is one of the most serious adverse outcomes of pregnancy. Since the onset of the COVID-19 pandemic, Brazil has recorded an unprecedented number of hospitalizations of pregnant women due to acute respiratory distress (ARD), thereby, we aimed to assess the risk of fetal deaths associated to ARD during pregnancy in Bahia state, Brazil, in the context of the COVID-19 pandemic.

Methods

This is an observational population-based retrospective cohort study, developed with women at or after 20 weeks of pregnancy, residents in Bahia, Brazil. Women who had acute respiratory distress (ARD) in pregnancy during the COVID-19 pandemic (Jan 2020 to Jun 2021) were considered 'exposed'. Women who did not have ARD in pregnancy, and whose pregnancy occurred before the onset of the COVID-19 pandemic (Jan 2019 to Dec 2019) were considered 'non-exposed'. The main outcome was fetal death. We linked administrative data (under mandatory registration) on live births, fetal deaths, and acute respiratory syndrome, using a probabilistic linkage method, and analyzed them with multivariable logistic regression models.

Results

200,979 pregnant women participated in this study, 765 exposed and 200,214 unexposed. We found four times higher chance of fetal death in women with ARD during pregnancy, of all etiologies (adjusted odds ratio [aOR] 4.06 confidence interval [CI] 95% 2.66; 6.21), and due to SARS-CoV-2 (aOR 4.45 CI 95% 2.41; 8.20). The risk of fetal death increased more when ARD in pregnancy was accompanied by vaginal delivery (aOR 7.06 CI 95% 4.21; 11.83), or admission to Intensive Care Unit (aOR 8.79 CI 95% 4.96; 15.58), or use of invasive mechanical ventilation (aOR 21.22 CI 95% 9.93; 45.36).

Conclusion

Our findings can contribute to expanding the understanding of health professionals and managers about the harmful effects of SARS-CoV-2 on maternal–fetal health and alerts the need to prioritize pregnant women in preventive actions against SARS-CoV-2 and other respiratory viruses. It also suggests that pregnant women, infected with SARS-CoV-2, need to be monitored to prevent complications of ARD, including a careful assessment of the risks and benefits of early delivery to prevent fetal death. (Author)

Full URL: https://doi.org/10.1186/s12884-023-05601-w

2023-05674

Analysis of placental pathology after COVID-19 by timing and severity of infection. Corbetta-Rastelli CM, Altendahl M, Gasper C, et al (2023), American Journal of Obstetrics & Gynecology MFM vol 5, no 7, July 2023, 100981

Background

COVID-19 infection during pregnancy can have serious effects on pregnancy outcomes. The placenta acts as an infectious barrier to the fetus and may mediate adverse outcomes. Increased frequency of maternal vascular malperfusion has been detected in placentas affected by COVID-19 compared to controls, but little is known how timing and severity of infection impact placental pathology.

Objective

To examine the effects of COVID-19 infection on placental pathology, specifically whether timing and severity of COVID-19 infection impacts pathological findings and associations with perinatal outcomes.

Study Design

This was a descriptive retrospective cohort study of pregnant people diagnosed with COVID-19 infection who delivered between April 2020 and September 2021 at three university hospitals. We collected demographic, placental, delivery and neonatal outcomes through chart review. We noted the timing of COVID-19 infection and categorized severity of COVID-19 infection based on National Institutes of Health guidelines. The placentas of all patients with positive nasopharyngeal RT-PCR COVID-19 testing were sent for gross and microscopic histopathologic examination at time of delivery. Non-blinded pathologists categorized histopathologic lesions according to the Amsterdam criteria. Univariate linear regression and chi-square analyses assessed how timing and severity of COVID-19 infection affected placental pathological findings.

Results

We included 131 pregnant patients and 138 placentas in this study, with the majority of patients delivered at the University of California Los Angeles (n=65) followed by the University of California San Francisco (n=38) and Zuckerberg San Francisco General Hospital (n=28). Most patients were diagnosed with COVID-19 in the 3rd trimester (69%) and most infections were mild (60%). We found no specific placental pathological features based on timing or severity of COVID-19 infection. There was a higher frequency of placental features associated with response to infection in placentas from infections before 20 weeks compared to infections after 20 weeks (p=0.001). There were no differences in maternal vascular malperfusion by timing of infection, however severe maternal vascular malperfusion features were only found in placentas from 2nd and 3rd trimester COVID-19 infections, not 1st trimester.

Conclusion

Placentas from COVID-19 infections showed no specific pathological features regardless of timing or severity of disease. There was a higher proportion of COVID-19 positive placentas in earlier gestations with evidence of placental infection-associated features. Future studies should focus on understanding how these placental features in COVID-19 infections go on to impact pregnancy outcomes. (Author)

Full URL: https://doi.org/10.1016/j.ajogmf.2023.100981

2023-05669

Pregnancy inclusion in US statewide scarce resource allocation guidelines during COVID-19 pandemic. Gatta LA, Al-Shibli N, Hughes BL, et al (2023), American Journal of Obstetrics & Gynecology MFM vol 5, no 7, July 2023, 100984

In this report, we assess whether statewide crisis standards of care (CSC) guidelines active during COVID-19, included pregnancy. Among those that do, we describe the ethical triage principles used in allocation guidelines when a pregnant patient was among potential recipients. (Author, edited)

Full URL: https://doi.org/10.1016/j.ajogmf.2023.100984

2023-05643

The COVID-19 pandemic and prevalence of gestational diabetes: Does gestational weight gain matter?. Mirsky EL, Mastronardi AM, Paudel A, et al (2023), American Journal of Obstetrics & Gynecology MFM vol 5, no 5, May 2023, 100899

OBJECTIVE

Previous European reports indicated an increased prevalence of gestational diabetes mellitus (GDM) among relatively lean cohorts during the COVID-19 pandemic.1,2 Less is known about how the pandemic affected the prevalence of

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GDM in the United States, specifically among those with morbid obesity. Pregnant people with obesity have been reported to be at increased risk of excessive gestational weight gain (GWG) during the COVID-19 pandemic,3 which may have further increased the risk of GDM among this group. The primary aim of our study was to investigate whether the prevalence of GDM increased among our delivering patients, with consideration of their weight status, during the COVID-19 pandemic. The secondary aim of our study was to determine whether GDM diagnosis was associated with increased GWG.

STUDY DESIGN

This retrospective cohort study included patients with a singleton, term birth who delivered before the COVID-19 pandemic (January 2019 to May 2020) and during the COVID-19 pandemic (July 2020 to November 2021) at a single academic institution. As recommended by the American College of Obstetricians and Gynecologists, prenatal patients at our institution are screened for GDM between 24 and 28 weeks of gestation.4 Patients that were screened before March 2020 (the declared start of the COVID-19 pandemic) would have been delivered, at term, by the end of May 2020. Therefore, the pre–COVID-19 period was defined as January 2019 to May 2020 to capture term deliveries where GDM screening occurred before March 2020. We included a 1-month "washout" period (June 2020) to ensure only those diagnosed with GDM during the COVID-19 period were captured (July 2020 to November 2021). This study was approved by the University of Tennessee Graduate School of Medicine Institutional Review Board (IRB#4907). Patients with a preexisting type 1 or 2 diabetes mellitus, a multigestation pregnancy, a preterm delivery, or an unknown gestational age at delivery were excluded. Data collected on delivery admission included height, prepregnancy weight, weight at delivery, maternal age, race and ethnicity, and diagnosis of GDM. Prepregnancy body mass index (BMI) was calculated using height and prepregnancy weight. To examine potential differences in patients with higher classes of obesity, standard weight status categories based on BMI were created. These included underweight (BMI of <18.5 kg/m2), healthy (BMI of 18.5 to <25.0 kg/m2), overweight (BMI of 25.0 to <30.0 kg/m2), obese class 1 (BMI of 30.0 to <35.0 kg/m2), obese class 2 (BMI of 35.0 to <40.0 kg/m2), and obese class 3 (BMI of ≥40.0 kg/m2). GWG was calculated by prepregnancy weight deducted from weight at delivery. This study followed the Strengthening the Reporting of Observational Studies in Epidemiology reporting guidelines. Binary and multiple regression analyses were used to identify potential differences in GDM diagnosis before the COVID-19 pandemic vs during the COVID-19 pandemic, controlling for potentially confounding factors (including weight status, maternal and gestational age, GWG, and race and ethnicity). Student t tests were used to assess the effect of the COVID-19 pandemic on GWG, stratified by weight status, among those with GDM. A P value of .05 was considered statistically significant. Data were analyzed using the SPSS (version 28; IBM Corporation, Armonk, NY).

RESULTS

During the COVID-19 pandemic, 12.2% of patients were diagnosed with GDM, compared with 9.9% of patients before the COVID-19 pandemic (P<.001). Those with GDM diagnosis had an associated lower GWG relative to those without GDM, in the unadjusted and adjusted models (P<.001) (Table). Among those diagnosed with GDM, there was no significant difference in GWG in the pre–COVID-19 or during–COVID-19 groups or when stratified by any weight status categories (data not shown) (P>.05). (Author)

2023-05469

Evaluation of pregnancy outcomes in mothers with COVID-19 infection: a systematic review and meta-analysis. Simbar M, Nazarpour S, Sheidaei A (2023), Journal of Obstetrics and Gynaecology vol 43, no 1, 2023, 2162867

Pregnant women are one of the endangered groups who need special attention in the COVID-19 epidemic. We conducted a systematic review and summarised the studies that reported adverse pregnancy outcomes in pregnant women with COVID-19 infection. A literature search was performed in PubMed and Scopus up to 1 September 2022, for retrieving original articles published in the English language assessing the association between COVID-19 infection and adverse pregnancy outcomes. Finally, in this review study, of 1790 articles obtained in the initial search, 141 eligible studies including 1,843,278 pregnant women were reviewed. We also performed a meta-analysis of a total of 74 cohort and case-control studies. In this meta-analysis, both fixed and random effect models were used. Publication bias was also assessed by Egger's test and the trim and fill method was conducted in case of a significant result, to adjust the bias. The result of the meta-analysis showed that the pooled prevalence of preterm delivery, maternal mortality, NICU admission and neonatal death in the group with COVID-19 infection was significantly more than those

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without COVID-19 infection (p<.01). A meta-regression was conducted using the income level of countries. COVID-19 infection during pregnancy may cause adverse pregnancy outcomes including of preterm delivery, maternal mortality, NICU admission and neonatal death. Pregnancy loss and SARS-CoV2 positive neonates in Lower middle income are higher than in High income. Vertical transmission from mother to foetus may occur, but its immediate and long-term effects on the newborn are unclear. (Author)

Full URL: https://doi.org/10.1080/01443615.2022.2162867

2023-05458

Accessibility and utilization of antenatal care services in sub-Saharan Africa during the COVID-19 pandemic: A rapid review. Murewanhema G, Mpabuka E, Moyo E, et al (2023), Birth vol 50, no 3, September 2023, pp 496-503

Control measures for the COVID-19 pandemic brought unprecedented challenges to health care delivery. Some countries in sub-Saharan Africa (SSA) stopped the provision of essential health care except for those services that were deemed emergencies or life-threatening. A rapid review was conducted on March 18, 2022, on the accessibility and utilization of antenatal care services in sub-Saharan Africa during the COVID-19 pandemic. PubMed, Google Scholar, SCOPUS, and the World Health Organization library databases were searched for relevant studies. A modified Population, Intervention, Control, and Outcomes (PICO) framework informed the development of the search strategy. The review included studies conducted within Africa that described the availability, access, and utilization of antenatal services during the COVID-19 pandemic. Eighteen studies met the inclusion criteria. This review revealed a reduction in access to ANC services, an increase in the number of home deliveries, and a reduction in the number of women attending ANC visits during the COVID-19 pandemic. A decrease in ANC service utilization was reported in some studies in the review. Barriers to ANC access and utilization during the COVID-19 pandemic included movement restrictions, limited transport access, fear of contracting COVID-19 at the health facilities, and facility barriers. The use of telemedicine needs to be improved in African countries to allow for the continued provision of health services during pandemics. In addition, there should strengthening of community involvement in the provision of maternal health services post-COVID-19 so that services may be able to better withstand future public health emergencies. (Author)

Full URL: https://doi.org/10.1111/birt.12719

2023-05101

Global knowledge, attitude, and practice towards COVID-19 among pregnant women: a systematic review and meta-analysis. Jahromi AS, Jokar M, Sharifi N, et al (2023), BMC Pregnancy and Childbirth vol 23, no 278, April 2023

Background

Pregnant women form a specially vulnerable group due to unique changes in pregnancy, leading to a higher risk of getting a severe infection. As severe COVID-19 increases the risk of preeclampsia, preterm delivery, gestational diabetes, and low birth weight in pregnancy, there is a need to enhance pregnant women's knowledge, attitudes, and practices to prevent these complications. This systematic review and meta-analysis aimed to determine their levels of knowledge, attitudes, and practice (KAP) regarding COVID-19 at the global level.

Methods

The systematic literature search was conducted in the English language, including Google Scholar, Scopus, PubMed/MEDLINE, Science Direct, Web of Science, EMBASE, Springer, and ProQuest, from the occurrence of the pandemic until September 2022. We used The Newcastle Ottawa scale for cross-sectional studies checklist to evaluate the risk of bias in the studies. Data were extracted by a Microsoft Excel spreadsheet and analyzed by STATA software version 14. We also employed Cochran Q statistics to assess the heterogeneity of studies and utilized Inverse variance random-effects models to estimate the pooled level of pregnant women's KAP towards COVID-19 infection prevention.

Results

Based on the preferred reporting items for systematic reviews and meta-analyses (PRISMA) and inclusion criteria, 53

qualified studies were acquired from several countries. In total, 51 articles (17,319 participants) for knowledge, 15 articles (6,509 participants) for attitudes, and 24 articles (11,032 participants) for practice were included in this meta-analysis. The pooled good knowledge, positive attitude, and appropriate practice in pregnant women were estimated at 59%(95%CI: 52–66%), 57%(95%CI: 42–72%), and 53%(95%CI: 41–65%), respectively. According to subgroup analysis, the level of knowledge, attitude, and practice were 61%(95%CI: 49–72), 52%(95%CI: 30–74), and 50%(95%CI: 39–60), respectively, in Africa, and 58.8%(95%CI: 49.2–68.4), 60%(95%CI: 41–80) and 60% (95%CI: 41–78), respectively, in Asia.

Conclusion
The Knowledge, attitude, and practice towards COVID-19 infection prevention in pregnant women were low. It is suggested that health education programs and empowerment of communities, especially pregnant women, about COVID-19 continue with better planning. For future studies, we propose to investigate the KAP of COVID-19 in pregnant women in countries of other continents and geographical regions. (Author)
Full URL: https://doi.org/10.1186/s12884-023-05560-2

2023-05068

General approach to delivery and resuscitation of newborn infants from mothers at risk or proven COVID-19.
Aguar-Carrascosa M, Fernández-Colomer B, Renau MI, et al (2023), Seminars in Fetal and Neonatal Medicine vol 28, no 2, April 2023, 101432

This manuscript aims to present updated information on the comprehensive care to mother-newborn dyad at high risk of COVID-19 in the delivery room and during immediate postnatal care. (JM)
Full URL: https://doi.org/10.1016/j.siny.2023.101432

2023-05067

Maternal and perinatal COVID-19 – The past, present and the future. Lakshminrusimha S, Hedriana HL (2023), Seminars in Fetal and Neonatal Medicine 1 April 2023, online

This editorial discusses the impact of COVID-19 on obstetric and perinatal care that has evolved over the past 3 years. (JM)

2023-05066

Multisystem inflammatory syndrome in neonates (MIS-N) associated with perinatal SARS CoV-2 infection: Does it exist?. Lakshminrusimha S, More K, Shah PS, et al (2023), Seminars in Fetal and Neonatal Medicine vol 28, no 2, April 2023, 101433

This article reviews various case reports, literature, systematic reviews and research to discuss the association between neonates with MIS-N and perinatal SARS CoV-2 infections. (JM)
Full URL: https://doi.org/10.1016/j.siny.2023.101433

2023-05065

Extracorporeal membrane oxygenation in pregnancy during the SARS-CoV-2 pandemic. Richley M, Rao R (2023), Seminars in Fetal and Neonatal Medicine vol 28, no 1, February 2023, 101435

Extracorporeal membrane oxygenation (ECMO) has been described in multiple case reports as an effective bridge to recovery for patients with severe respiratory distress syndrome in a COVID-19 setting. This review describes ECMO use in a pregnancy and COVID-19 setting. (JM)

2023-05064

Pregnancy and Severe ARDS with COVID-19: Epidemiology, Diagnosis, Outcomes and Treatment. Lim MJ, Lakshminrusimha S, Hedriana HL, et al (2023), Seminars in Fetal and Neonatal Medicine vol 28, no 1, February 2023, 101426

Pregnancy-related acute respiratory distress syndrome (ARDS) is fast becoming a growing and clinically relevant subgroup of ARDS amidst global outbreaks of various viral respiratory pathogens that include H1N1-influenza, severe

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acute respiratory syndrome (SARS), middle east respiratory syndrome (MERS), and the most recent COVID-19 pandemic. Pregnancy is a risk factor for severe viral-induced ARDS and commonly associated with poor maternal and fetal outcomes including fetal growth-restriction, preterm birth, and spontaneous abortion. Physiologic changes of pregnancy further compounded by mechanical and immunologic alterations are theorized to impact the development of ARDS from viral pneumonia. The COVID-19 sub-phenotype of ARDS share overlapping molecular features of maternal pathogenicity of pregnancy with respect to immune-dysregulation and endothelial/microvascular injury (i.e., preeclampsia) that may in part explain a trend toward poor maternal and fetal outcomes seen with severe COVID-19 maternal infections. To date, current ARDS diagnostic criteria and treatment management fail to include and consider physiologic adaptations that are unique to maternal physiology of pregnancy and consideration of maternal-fetal interactions. Treatment focused on lung-protective ventilation strategies have been shown to improve clinical outcomes in adults with ARDS but may have adverse maternal-fetal interactions when applied in pregnancy-related ARDS. No specific pharmacotherapy has been identified to improve outcomes in pregnancy with ARDS. Adjunctive therapies aimed at immune-modulation and anti-viral treatment with COVID-19 infection during pregnancy have been reported but data in regard to its efficacy and safety is currently lacking. (Author)

Full URL: https://doi.org/10.1016/j.siny.2023.101426

2023-05063

Impact of perinatal COVID on fetal and neonatal brain and neurodevelopmental outcomes. Brum AC, Vain NE (2023), Seminars in Fetal and Neonatal Medicine vol 28, no 2, April 2023, 101427

After three years of the COVID-19 pandemic, we have learned many aspects of the disease and the virus: its molecular structure, how it infects human cells, the clinical picture at different ages, potential therapies, and the effectiveness of prophylaxis. Research is currently focused on the short- and long-term consequences of COVID-19. We review the available information on the neurodevelopmental outcome of infants born during the pandemic from infected and non-infected mothers, as well as the neurological impact of neonatal SARS-CoV-2 infection. We also discuss the mechanisms that could potentially affect the fetal or neonatal brain including direct impact after vertical transmission, maternal immune activation with a proinflammatory cytokine storm, and finally the consequences of complications of pregnancy secondary to maternal infection that could affect the fetus. Several follow-up studies have noted a variety of neurodevelopmental sequelae among infants born during the pandemic. There is controversy as to the exact etiopathogenesis of these neurodevelopmental effects: from the infection itself or as a result of parental emotional stress during that period. We summarize case reports of acute neonatal SARS-CoV-2 infections associated with neurological signs and neuroimaging changes. Many infants born during previous pandemics caused by other respiratory viruses demonstrated serious neurodevelopmental and psychological sequelae that were only recognized after several years of follow-up. It is essential to warn health authorities about the need for very long-term continuous follow up of infants born during the SARS-CoV-2 pandemic for early detection and treatment that could help mitigate the neurodevelopmental consequences of perinatal COVID-19. (Author)

Full URL: https://doi.org/10.1016/j.siny.2023.101427

2023-05062

Maternal and neonatal outcomes following SARS-CoV-2 infection. Boettcher LB, Metz TD (2023), Seminars in Fetal and Neonatal Medicine vol 28, no 1, February 2023, 101428

Infection with SARS-CoV-2 causing COVID-19 in pregnancy is known to confer risks to both the pregnant patient and fetus. A review of the current literature demonstrates that pregnant individuals with SARS-CoV-2 infection are at risk for higher composite morbidity, intensive care unit admission, ventilatory support, pre-eclampsia, preterm birth, and neonatal intensive care unit admissions compared to pregnant individuals without SARS-CoV-2. Worse obstetric morbidity and mortality generally correlate with the severity of COVID-19. Comorbidities such as diabetes increase the risk of severe COVID-19. An increased risk of stillbirth appears to be predominantly confined to pregnancies affected in the Delta variant time period. Further, vaccination against SARS-CoV-2 has been demonstrated to be safe and effective in pregnancy and while breastfeeding. Therefore, continued counseling encouraging vaccination remains imperative. The long-term maternal and neonatal consequences of pregnancies affected by SARS-CoV-2 remain

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unknown, and therefore continued research in this regard is warranted. (Author)

2023-05061

Transmission of SARS-CoV-2 from mother to fetus or neonate: What to know and what to do?. De Luca D, Vauloup-Fellous C, Benachi A, et al (2023), Seminars in Fetal and Neonatal Medicine vol 28, no 1, February 2023, 101429

SARS-CoV-2 can be vertically transmitted from the mother to the fetus and the neonate. This transmission route is rare compared to the environmental or horizontal spread and therefore, the risk can be deemed inconsequential by some medical providers. However, severe, although just as rare, feto-neonatal consequences are possible: fetal demise, severe/critical neonatal COVID-19 and multi-inflammatory syndrome (MIS-N) have been described. Therefore, it is important for the clinicians to know the mechanism of vertical transmission, how to recognize this, and how to deal with neonatal COVID-19 and MIS-N. Our knowledge about this field has significantly increased in the last three years. This is a summary of the pathophysiology, diagnostics, and therapeutics of vertical SARS-CoV-2 transmission that clinicians apply in their clinical practice. (Author)

2023-05059

Multisystem inflammatory disease in neonates (MIS-N) due to maternal COVID-19. Ramaswamy VV, Abiramalatha T, Pullattayil AKS, et al (2023), Seminars in Fetal and Neonatal Medicine vol 28, no 2, April 2023, 101431

Multisystem inflammatory disease in neonates (MIS-N) is a disease of immune dysregulation presenting in the newborn period. Thouvgh its etiopathogenesis is proposed to be similar to multisystem inflammatory disease in Children (MIS-C), the exact pathophysiology is largely unknown as of present. The definition of MIS-N is contentious. The evidence for its incidence, the clinical features, profile of raised inflammatory markers, treatment strategies and outcomes stem from case reports, case series and cohort studies with small sample sizes. Though the incidence of MIS-N in severe acute respiratory syndrome caused by the coronavirus CoVID-2 (SARS-CoV-2) infected asymptomatic neonates is low, its incidence in symptomatic neonates is relatively higher. Further, amongst the neonates who are treated as MIS-N, the mortality rate is high. The review also evaluates the various other unresolved aspects of MIS-N from limited published literature and identifies knowledge gaps which could be areas of future research. (Author)

Full URL: https://doi.org/10.1016/j.siny.2023.101431

2023-05018

Humoral immune response to SARS-CoV-2 in pregnant and non-pregnant women following infection. Jacobs MB, Valentine HD, Adkins S, et al (2023), AJOG Global Reports vol 3, no 2, May 2023, 100192

Background

Immune changes that occur during pregnancy may place pregnant women at an increased risk for severe disease following viral infections like SARS-CoV-2. Whether these immunological changes modify immune response to SARS-CoV-2 infection during pregnancy is not well understood.

Objective

The objective of the present study is to compare humoral immune response to SARS-CoV-2 infection in pregnant and non-pregnant women. Immune response following vaccination for SARS-CoV-2 was also explored.

Study Design

In the present cohort study, 24 serum samples from 20 patients infected with SARS-CoV-2 during pregnancy were matched on number of days post positive test to 46 samples from 40 non-pregnant women of reproductive age. Samples from nine patients vaccinated during pregnancy were also examined. Immunoglobulin G (IgG) and immunoglobulin M (IgM) antibody levels were measured. Trends in log antibody levels over time and mean antibody levels were assessed using generalized estimating equations.

Results

Median number of days from first positive test to sampling was 6.5 in the pregnant group (range 3-97) and 6.0 among

non-pregnant participants (range 2-97). No significant differences in demographic or sampling characteristics were noted between groups. No differences in IgG or IgM levels over time or mean antibody levels were noted in pregnant and non-pregnant participants following SARS-CoV-2 infection for any of the SARS-CoV-2 antigens targets examined [Spike, Spike Receptor Binding Domain (RBD), Spike N-Terminal Domain (NTD), and Nucleocapsid]. Participants vaccinated during pregnancy had higher IgG levels than pregnant positive patients for all SARS-CoV-2 targets except Nucleocapsid (all $p < 0.001$), as well as lower IgM Spike ($p < 0.05$) and RBD ($p < 0.01$) antibody levels.

Conclusions

The present study suggests that humoral response following SARS-CoV-2 infection does not appear to differ in pregnant women compared to their non-pregnant counterparts. These findings should reassure patients and healthcare providers that pregnant patients appear to mount a non-differential immune response to SARS-CoV-2. (Author)

Full URL: https://doi.org/10.1016/j.xagr.2023.100192

2023-05017

Placental and Doppler ultrasound findings in SARS-CoV-2-positive pregnant women. Soto-Sánchez EM, López-Gorosabel C, Ibáñez-Santamaría AB, et al (2023), AJOG Global Reports vol 3, no 2, May 2023, 100190

Background

Several viral infections cause changes in the placenta: CMV, herpes viruses and HIV cause increased placental thickness; Zika virus induces focal regions of necrosis; Parvovirus B19 causes a structural injury. Umbilical flow can be considered a direct measurement of vascular placental function.

Objectives

We aimed to compare placental ultrasound and umbilical Doppler findings in pregnant women who tested positive or negative for SARS-CoV-2 (severe acute respiratory syndrome coronavirus-2). Our work aimed to confirm the suspicion of placental infection and the consequence in fetal physiopathology.

Study design

Fifty-seven (57) pregnant women who tested positive for SARS-CoV-2 at the time of or one month prior to the ultrasound scan (US) were evaluated. Cases included 9-first trimester, 16-second trimester and 32- third trimester US. For comparison, 110 pregnant women (controls) were evaluated. They included 19-first trimester, 43-second trimester and 48-third trimester. Controls were asymptomatic and tested negative for SARS-CoV-2 infection in the last 72 hours before the ultrasound scan. Fetal biometry, placental thickness (PT), placental lakes (PL) and Doppler umbilical vein parameters including venous cross-sectional area (mean transverse diameter, radius umbilical vein, mean velocity umbilical vein [MVUV]) and umbilical vein blood flow (UVBF) were evaluated.

Results

PT in mm was significantly higher in the group of SARS-CoV-2-positive pregnant women (53.82 [10-115]) than in the control group (33.82 [12-66]; $p<0.001$) in second and third trimesters. The frequency of greater than 4 PL was significantly higher in the group of SARS-CoV-2-positive pregnant women (28/57 [50.91%]) than in the control (7/110 [6.36]; $p<0.001$) in all three trimesters. The MVUV was significantly higher in the group of SARS-CoV-2-positive pregnant women (12.45 [5.73-21]) than in the control (10.81 [6.31-18.80]; $p=0.001$) in all three trimesters. UVBF (in ml/min) was significantly higher in the group of SARS-CoV-2-positive pregnant women (389.9 [6.52-1,496.1]) than in the control group (305.05 [3.11-1,441]; $p=0.05$) in all three trimesters.

Conclusion

Significant differences in placental and venous Doppler ultrasound were documented: placental thickness, placental venous lakes, mean velocity umbilical vein and umbilical vein flow were significantly higher in the group of SARS-CoV-2-positive pregnant women in all three trimesters. (Author)

Full URL: https://doi.org/10.1016/j.xagr.2023.100190

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2023-04956

The impact of COVID-19 variant 501Y.V2 on maternal and perinatal mortality among pregnant South African women.
Basu JK, Chauke L, Magoro T (2023), African Journal of Midwifery and Women's Health vol 17, no 1, January 2023

Background/Aims

The COVID-19 variant SARS COV 501Y.V2 was responsible for the second wave of COVID-19 in South Africa from October 2020 to March 2021. There are no studies that report on maternal mortality from this variant globally. This study's aim was to determine the impact of the variant on maternal deaths in the Ekurhuleni health district, South Africa.

Methods

A retrospective record review of all maternal deaths in COVID-19 positive cases in the Ekurhuleni health district from October 2020 to March 2021 was conducted. Demographic details, comorbidities and obstetric data were assessed.

Results

A total of 11 women who tested positive for COVID-19 died. In these cases, there were high rates of hypertension (67%), stillbirth (50%) and preterm caesarean section (67%). Laboratory abnormalities, including anaemia (64%) and high levels of lactic dehydrogenase (100%), aspartate transaminase (67%) and D-dimer (80%), were observed.

Conclusions

This study adds to the growing global knowledge of COVID-19 infections. Routine COVID-19 testing of all comorbid pregnant women at each antenatal visit is recommended. All pregnant women should be counselled to follow strict COVID-19 prevention protocols. (Author)

2023-04939

Early effects of COVID-19 on maternal and child health service disruption in Mozambique. Augusto O, Roberton T, Fernandes Q, et al (2023), Frontiers in Public Health 17 April 2023, online

Introduction: After the World Health Organization declared COVID-19 a pandemic, more than 184 million cases and 4 million deaths had been recorded worldwide by July 2021. These are likely to be underestimates and do not distinguish between direct and indirect deaths resulting from disruptions in health care services. The purpose of our research was to assess the early impact of COVID-19 in 2020 and early 2021 on maternal and child healthcare service delivery at the district level in Mozambique using routine health information system data, and estimate associated excess maternal and child deaths.

Methods: Using data from Mozambique's routine health information system (SISMA, Sistema de Informação em Saúde para Monitoria e Avaliação), we conducted a time-series analysis to assess changes in nine selected indicators representing the continuum of maternal and child health care service provision in 159 districts in Mozambique. The dataset was extracted as counts of services provided from January 2017 to March 2021. Descriptive statistics were used for district comparisons, and district-specific time-series plots were produced. We used absolute differences or ratios for comparisons between observed data and modeled predictions as a measure of the magnitude of loss in service provision. Mortality estimates were performed using the Lives Saved Tool (LiST).

Results: All maternal and child health care service indicators that we assessed demonstrated service delivery disruptions (below 10% of the expected counts), with the number of new users of family planing and malaria treatment with Coartem (number of children under five treated) experiencing the largest disruptions. Immediate losses were observed in April 2020 for all indicators, with the exception of treatment of malaria with Coartem. The number of excess deaths estimated in 2020 due to loss of health service delivery were 11,337 (12.8%) children under five, 5,705 (11.3%) neonates, and 387 (7.6%) mothers.

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Conclusion: Findings from our study support existing research showing the negative impact of COVID-19 on maternal and child health services utilization in sub-Saharan Africa. This study offers subnational and granular estimates of service loss that can be useful for health system recovery planning. To our knowledge, it is the first study on the early impacts of COVID-19 on maternal and child health care service utilization conducted in an African Portuguese-speaking country. (Author)

Full URL: https://doi.org/10.3389/fpubh.2023.1075691

2023-04925

Panoramic snapshot of serum soluble mediator interplay in pregnant women with convalescent COVID-19: an exploratory study. Fernandes GM, Sasaki LMP, Jardim-Santos GP, et al (2023), Frontiers in Immunology 12 April 2023, online

Introduction: SARS-CoV-2 infection during pregnancy can induce changes in the maternal immune response, with effects on pregnancy outcome and offspring. This is a cross-sectional observational study designed to characterize the immunological status of pregnant women with convalescent COVID-19 at distinct pregnancy trimesters. The study focused on providing a clear snapshot of the interplay among serum soluble mediators.

Methods: A sample of 141 pregnant women from all prenatal periods (1st, 2nd and 3rd trimesters) comprised patients with convalescent SARS-CoV-2 infection at 3-20 weeks after symptoms onset (COVID, n=89) and a control group of pre-pandemic non-infected pregnant women (HC, n=52). Chemokine, pro-inflammatory/regulatory cytokine and growth factor levels were quantified by a high-throughput microbeads array.

Results: In the HC group, most serum soluble mediators progressively decreased towards the 2nd and 3rd trimesters of pregnancy, while higher chemokine, cytokine and growth factor levels were observed in the COVID patient group. Serum soluble mediator signatures and heatmap analysis pointed out that the major increase observed in the COVID group related to pro-inflammatory cytokines (IL-6, TNF-α, IL-12, IFN-γ and IL-17). A larger set of biomarkers displayed an increased COVID/HC ratio towards the 2nd (3x increase) and the 3rd (3x to 15x increase) trimesters. Integrative network analysis demonstrated that HC pregnancy evolves with decreasing connectivity between pairs of serum soluble mediators towards the 3rd trimester. Although the COVID group exhibited a similar profile, the number of connections was remarkably lower throughout the pregnancy. Meanwhile, IL-1Ra, IL-10 and GM-CSF presented a preserved number of correlations (≥5 strong correlations in HC and COVID), IL-17, FGF-basic and VEGF lost connectivity throughout the pregnancy. IL-6 and CXCL8 were included in a set of acquired attributes, named COVID-selective (≥5 strong correlations in COVID and <5 in HC) observed at the 3rd pregnancy trimester.

Discussion and conclusion: From an overall perspective, a pronounced increase in serum levels of soluble mediators with decreased network interplay between them demonstrated an imbalanced immune response in convalescent COVID-19 infection during pregnancy that may contribute to the management of, or indeed recovery from, late complications in the post-symptomatic phase of the SARS-CoV-2 infection in pregnant women. (Author)

Full URL: https://doi.org/10.3389/fimmu.2023.1176898

2023-04824

Developmental screening of full-term infants at 16 to 18 months of age after in-utero exposure to maternal SARS-CoV-2 infection. Shah AV, Howell HB, Kazmi SH, et al (2023), Journal of Perinatology vol 43, no 5, May 2023, pp 659–663

Objective

To screen for neurodevelopmental delays in a cohort of full-term infants born to mothers with SARS-CoV-2.

Study design

This was a prospective, descriptive cohort study of full-term infants born to mothers with SARS-CoV-2 during pregnancy. Subjects underwent neurodevelopmental screening using the Ages and Stages Questionnaires®-Third Edition (ASQ®-3) at 16 to 18 months age.

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Results

Of 51 subjects, twelve (24%) were below cutoff, and twenty-seven (53%) were either below or close to the cutoff in at least one developmental domain. Communication (29%), fine motor (31%), and problem-solving (24%) were the most affected domains. There were no differences in outcomes between infants born to asymptomatic and mildly symptomatic mothers.

Conclusion

We observed increased risk of neurodevelopmental delays during screening of infants born at full-term to mothers with SARS-CoV-2 at 16 to 18 months age. These results highlight the urgent need for follow-up studies of infants born to mothers with SARS-CoV-2. (Author)

2023-04809

Heterogeneity of emotional distress in pregnancy during COVID-19 pandemic: a latent profile analysis. Li X, Wang X, Zhou G (2024), Journal of Reproductive and Infant Psychology vol 42, no 5, 2024, pp 802-813

Background

Emotional distress, including depressive and anxiety symptoms, is a common concern among pregnant individuals and has negative impacts on maternal and offspring's health. Previous studies indicated the heterogeneity of perinatal emotional distress. Moreover, during the pandemic of COVID-19, expectant mothers are faced with more tough challenges, which could exacerbate their emotional distress.

Objective

The aim of present study is to examine potential subgroups with distinct profiles on emotional distress and relationship resources during the pandemic.

Methods

A total of 187 pregnant people in China were recruited from April 22 to May 16 in 2020. Latent profile analysis was applied based on prenatal depressive and anxiety symptoms, COVID-19-related negative emotions, prenatal attachment, marital satisfaction and family sense of coherence.

Results

Four subgroups were identified. Group 1 and Group 2 shared with low levels of emotional distress and COVID-19-related negative emotions, among which Group 1 had plenty of relationship resources, while Group 2 had insufficient support. Group 3 had moderate levels of emotional distress but above-average prenatal attachment. Group 4 was a highly distressed subtype with severe emotional distress and poor states across all domains.

Conclusion

Our findings support that emotion distress among expecting mothers is heterogeneous, highlighting the need for tailed interventions to address the specific needs of subgroups during pregnancy. (Author)

2023-04807

Perinatal meaning-making and meaning-focused coping in the COVID-19 pandemic. Weinstock MW, Moyer S, Jallo N, et al (2024), Journal of Reproductive and Infant Psychology vol 42, no 5, 2024, pp 896-914

Introduction

The COVID-19 pandemic caused unprecedented levels of stress amongst pregnant women and new mothers. The current qualitative study explored the ways in which perinatal women made meaning of their experiences during the COVID-19 pandemic.

Methods

Data came from a parent study in which 54 perinatal (pregnant and postpartum) women in the United States

completed semi-structured interviews from October 2021 to January 2022 describing their experiences during the COVID-19 pandemic. The data was interpreted using a hermeneutic, phenomenological approach to delve deeply into the concept of meaning-making.

Results
Despite high levels of stress and challenging circumstances, participants reported engaging in meaning-making through finding connection, focusing on gratitude, and identifying openings for change. Unique forms of meaning-making amongst this population include a sense of connection to women throughout history, connection to their baby, and recognition of the need for systemic change for perinatal women.

Conclusions
Perinatal women coped with the stress of the COVID-19 pandemic by making meaning from their experiences. Future research should further explore the importance of these aspects of meaning-making to perinatal women and implement these findings to adapt prevention and treatment approaches to address perinatal stress, especially during times of crisis. (Author)

2023-04801

The influence of being pregnant during the COVID-19 pandemic on birth expectations and antenatal bonding. Schaal NK, Hagenbeck C, Helbig M, et al (2023), Journal of Reproductive and Infant Psychology vol 41, no 1, 2023, pp. 15-25

Purpose
The aim of the present study was to compare birth expectations and antenatal bonding of women pregnant prior to and during the COVID-19 pandemic.

Materials and methods
In total, 74 pregnant women (mean age: 33.9 ± 4.1 years, gestational age: 36 ± 2 weeks) participated in the study, who were pregnant either during the the COVID-19 pandemic (corona group, N = 35, April–July 2020) or before the pandemic (control group, N = 39, October 2017–January 2019). Birth expectations were measured using the Wijma Delivery Expectancy Questionnaire (WDEQ) and Salmon's Item List (SIL) and antenatal bonding with the Maternal Antenatal Attachment Scale (MAAS). Additionally, the corona group indicated their level of worry regarding different pandemic-related aspects using visual analogue scales.

Results
The corona group displayed significantly elevated fear of childbirth measured by the WDEQ and lower antenatal bonding quality compared to the control group. The additional items regarding COVID-19 burdens highlighted that the aspects that the partner may not be present during labour and that no visitors will be allowed in hospital were associated with the highest worries.

Conclusions
Midwives and gynaecologists should be aware of the negative impact of the COVID-19 pandemic on fear of childbirth and antenatal bonding. (Author)

2023-04794

Fetal Diaphragmatic Excursion Is Decreased in Hospitalized Pregnant Women Infected with COVID-19 during the Second and Third Trimesters. Sahin ME, Sahin E, Kirlangic MM, et al (2023), American Journal of Perinatology 9 March 2023, online

Objective In the present study, we aimed to evaluate coronavirus disease 2019 (COVID-19) infection effects on fetal diaphragm thickness and diaphragmatic excursion, which together show the quality of diaphragmatic contractions.

Study Design One hundred and ninety-two pregnant women were included in this prospective case–control study.

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Patients were divided into four groups according to their COVID-19 infection history in their second or third trimester: hospitalized COVID-19-infected pregnant women group (n = 48), outpatient COVID-19-infected pregnant women group (n = 48), common cold (COVID-19 polymerase chain reaction negative) pregnant women group (n = 48), and noninfected healthy controls (n = 48). The number of patients was determined by power analysis following the pilot study. All participants underwent an ultrasound examination to determine fetal diaphragm parameters at 32 to 37 weeks of gestation.

Results Demographic characteristics were similar among the four groups. The gestational age at ultrasound examination and gestational age at delivery were similar among the groups. Neonatal intensive care unit (NICU) admission rate was significantly higher in the hospitalized COVID-19-infected pregnant women group than the other groups. The fetal diaphragm thickness during inspiration and expiration, and fetal costophrenic angles at inspiration and expiration were similar among the groups. Fetal diaphragmatic excursion was significantly decreased in the hospitalized COVID-19-infected pregnant women group compared with the other groups.

Conclusion Our results indicated that moderate maternal COVID-19 infection decreased fetal diaphragmatic excursion, and ultrasonographic evaluation of fetal diaphragmatic excursion before delivery can provide critical information to predict whether infants will require NICU admission. (Author)

2023-04790

Perinatal Outcomes during versus Prior to the COVID-19 Pandemic and the Role of Maternal Depression and Perceived Stress: A Report from the ECHO Program. McKee KS, Tang X, Tung I, et al (2023), American Journal of Perinatology 23 March 2023, online

Objective We sought to evaluate the impact of the coronavirus disease 2019 (COVID-19) pandemic on perinatal outcomes while accounting for maternal depression or perceived stress and to describe COVID-specific stressors, including changes in prenatal care, across specific time periods of the pandemic.

Study Design Data of dyads from 41 cohorts from the National Institutes of Health Environmental influences on Child Health Outcomes Program (N = 2,983) were used to compare birth outcomes before and during the pandemic (n = 2,355), and a partially overlapping sample (n = 1,490) responded to a COVID-19 questionnaire. Psychosocial stress was defined using prenatal screening for depression and perceived stress. Propensity-score matching and general estimating equations with robust variance estimation were used to estimate the pandemic's effect on birth outcomes.

Results Symptoms of depression and perceived stress during pregnancy were similar prior to and during the pandemic, with nearly 40% of participants reporting mild to severe stress, and 24% reporting mild depression to severe depression. Gestations were shorter during the pandemic (B = − 0.33 weeks, p = 0.025), and depression was significantly associated with shortened gestation (B = − 0.02 weeks, p = 0.015) after adjustment. Birth weights were similar (B = − 28.14 g, p = 0.568), but infants born during the pandemic had slightly larger birth weights for gestational age at delivery than those born before the pandemic (B = 0.15 z-score units, p = 0.041). More women who gave birth early in the pandemic reported being moderately or extremely distressed about changes to their prenatal care and delivery (45%) compared with those who delivered later in the pandemic. A majority (72%) reported somewhat to extremely negative views of the impact of COVID-19 on their life.

Conclusion In this national cohort, we detected no effect of COVID-19 on prenatal depression or perceived stress. However, experiencing the COVID-19 pandemic in pregnancy was associated with decreases in gestational age at birth, as well as distress about changes in prenatal care early in the pandemic. (Author)

2023-04749

Trends in Telehealth Visits During Pregnancy, 2018 to 2021. Acharya M, Ali MM, Hayes CJ, et al (2023), JAMA Network Open vol 6, no 4, April 2023, e236630

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This research letter discusses a cross-sectional study that assessed trends of prenatal telehealth visits in pregnancy and explored patient characteristics associated with the number of prenatal telehealth visits. (JM)
Full URL: https://doi.org/10.1001/jamanetworkopen.2023.6630

2023-04746

Severe Maternal Morbidity and Mortality of Pregnant Patients With COVID-19 Infection During the Early Pandemic Period in the US. Matsuo K, Green JM, Herrman SA, et al (2023), JAMA Network Open vol 6, no 4, April 2023, e237149

This research letter discusses a cohort study that noted increasing evidence that pregnant patients with COVID-19 infection are at high risk for adverse pregnancy outcomes. This national-level analysis, utilizing public data, found substantial adverse maternal outcomes among pregnant patients with COVID-19 infection at delivery during the early pandemic in the US. Among other findings, the odds of severe respiratory complications were increased amount pregnant patients with a COVID-19 at delivery. Key limitations are highlighted in the study and research letter that include information limitations on COVID-19 infection status, neonatal outcomes, delivery indication, and cause of death. (JM)
Full URL: https://doi.org/10.1001/jamanetworkopen.2023.7149

2023-04745

Assessment of Neurodevelopment in Infants With and Without Exposure to Asymptomatic or Mild Maternal SARS-CoV-2 Infection During Pregnancy. Firestein MR, Shuffrey LC, Hu Y, et al (2023), JAMA Network Open vol 6, no 4, April 2023, e237396

Importance Associations between prenatal SARS-CoV-2 exposure and neurodevelopmental outcomes have substantial public health relevance. A previous study found no association between prenatal SARS-CoV-2 infection and parent-reported infant neurodevelopmental outcomes, but standardized observational assessments are needed to confirm this finding.

Objective To assess whether mild or asymptomatic maternal SARS-CoV-2 infection vs no infection during pregnancy is associated with infant neurodevelopmental differences at ages 5 to 11 months.

Design, Setting, and Participants This cohort study included infants of mothers from a single-site prospective cross-sectional study (COVID-19 Mother Baby Outcomes [COMBO] Initiative) of mother-infant dyads and a multisite prospective cohort study (Epidemiology of Severe Acute Respiratory Syndrome Coronavirus 2 in Pregnancy and Infancy [ESPI]) of pregnant individuals. A subset of ESPI participants was subsequently enrolled in the ESPI COMBO substudy. Participants in the ongoing COMBO study were enrolled beginning on May 26, 2020; participants in the ESPI study were enrolled from May 7 to November 3, 2021; and participants in the ESPI COMBO substudy were enrolled from August 2020 to March 2021. For the current analysis, infant neurodevelopment was assessed between March 2021 and June 2022. A total of 407 infants born to 403 mothers were enrolled (204 from Columbia University Irving Medical Center in New York, New York; 167 from the University of Utah in Salt Lake City; and 36 from the University of Alabama in Birmingham). Mothers of unexposed infants were approached for participation based on similar infant gestational age at birth, date of birth, sex, and mode of delivery to exposed infants.

Exposures Maternal symptomatic or asymptomatic SARS-CoV-2 infection.

Main Outcomes and Measures Infant neurodevelopment was assessed using the Developmental Assessment of Young Children, second edition (DAYC-2), adapted for telehealth assessment. The primary outcome was age-adjusted standard scores on 5 DAYC-2 subdomains: cognitive, gross motor, fine motor, expressive language, and receptive language.

Results Among 403 mothers, the mean (SD) maternal age at delivery was 32.1 (5.4) years; most mothers were of White race (240 [59.6%]) and non-Hispanic ethnicity (253 [62.8%]). Among 407 infants, 367 (90.2%) were born full term

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and 212 (52.1%) were male. Overall, 258 infants (63.4%) had no documented prenatal exposure to SARS-CoV-2 infection, 112 (27.5%) had confirmed prenatal exposure, and 37 (9.1%) had exposure before pregnancy or at an indeterminate time. In adjusted models, maternal SARS-CoV-2 infection during pregnancy was not associated with differences in cognitive (β = 0.31; 95% CI, −2.97 to 3.58), gross motor (β = 0.82; 95% CI, −1.34 to 2.99), fine motor (β = 0.36; 95% CI, −0.74 to 1.47), expressive language (β = −1.00; 95% CI, −4.02 to 2.02), or receptive language (β = 0.45; 95% CI, −2.15 to 3.04) DAYC-2 subdomain scores. Trimester of exposure and maternal symptom status were not associated with DAYC-2 subdomain scores.

Conclusions and Relevance In this study, results of a novel telehealth-adapted observational neurodevelopmental assessment extended a previous finding of no association between prenatal exposure to maternal SARS-CoV-2 infection and infant neurodevelopment. Given the widespread and continued high prevalence of COVID-19, these data offer information that may be helpful for pregnant individuals who experience asymptomatic or mild SARS-CoV-2 infections. (Author)

Full URL: http://dx.doi.org/10.1001/jamanetworkopen.2023.7396

2023-04726

Development of placental lesions after recovery from COVID-19 during pregnancy: case–control study. Milot C, Koch A, Averous G, et al (2023), BJOG: An International Journal of Obstetrics and Gynaecology vol 130, no 8, July 2023, pp 949-958

Objective

To study whether the occurrence and type of placental lesions vary according to the time of onset of COVID-19 in pregnant women.

Design

Case–control study.

Setting

Departments of Gynaecology-Obstetrics and Pathology, Strasbourg University Hospital, France.

Population

Cases were 49 placentas of women with COVID-19. Controls were 50 placentas from women who had a past history of molar pregnancy. COVID-19 placentas were categorised based on whether birth occurred at more or less than 14 days post-infection.

Methods

Comparison between case and controls.

Main outcome measures

Maternal and neonatal outcomes were recorded. Macroscopic and microscopic examination of the placentas was performed.

Results

The rate of vascular complications was higher in the COVID groups than in the controls (8 [16.3%] versus 1 [2%], p = 0.02). Signs of fetal (22[44.9%] versus 13 [26%], p = 0.05) and maternal (44 [89.8%] versus 36 [72.0%], p = 0.02) vascular malperfusion and signs of inflammation (11 [22.4%] versus 3 [6.0%], p = 0.019) were significantly more common in the COVID-19 groups than in the control group. Fetal malperfusion lesions (9 [39.1%] versus 13 [50.0%], p = 0.45) and placental inflammation (4 [17.4%] versus 7 [26.9%], p = 0.42) rates were not significantly different between the two COVID-19 groups. Chronic villitis was significantly more common when the delivery occurred >14 days after infection than in the group that delivered <14 days after infection (7 [26.9%] versus 1 [4.4%], p = 0.05).

Conclusions

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Our study suggests that SARS-COV-2 induces placental lesions that evolve after disease recovery, especially with the development of inflammatory lesions, such as chronic villitis. (Author)
Full URL: https://doi.org/10.1111/1471-0528.17458

2023-04598

The Ohio Maternal Safety Quality Improvement Project: Initial Results of a Statewide Perinatal Hypertension Quality Improvement Initiative Implemented During the COVID-19 Pandemic. Schneider P, Lorenz AM, Menegay MC, et al (2023), American Journal of Obstetrics & Gynecology MFM vol 5, no 6, June 2023, 100912

Background
Hypertensive disorders of pregnancy are a leading cause of severe maternal morbidity (SMM) and mortality and studies have shown that more than 60% of cases are preventable. As part of a state-wide quality maternal safety quality improvement project (MSQIP), we adapted the Alliance for Innovation on Maternal Health (AIM) Severe Hypertension in Pregnancy bundle in a consortium of maternity hospitals in [REDACTED] to improve care processes and outcomes for patients with a severe hypertensive event during pregnancy or postpartum period.
Objectives
To report the first year of data from this MSQIP, including an assessment of the process measures by hospital level of maternal care designation, and provide perspective on the unique challenges of implementing a large-scale MSQIP during a global pandemic.
Study Design
This MSQIP engaged [REDACTED] Level I-IV maternity hospitals and provided multimodal QI support. Participating hospitals submitted monthly patient level data, which included all cases of new onset sustained severe hypertension. The primary process measure was the proportion of birthing persons in [REDACTED] with sustained severe hypertension who received treatment with appropriate acute antihypertensive therapy within 60 minutes. Secondary process measures included receipt of: a follow-up appointment after hospital discharge within 72 hours (if discharged on medication) or 10 days (if discharged without medication), a blood pressure cuff on hospital discharge, and education about urgent maternal warning signs. Data for primary and secondary process measures were plotted on a biweekly basis and statistical process control methods were used to identify special cause variation over time. Data were stratified by various demographic variables, including race/ethnicity, insurance status, and maternal level of care. To assess the impact of the COVID-19 pandemic on this MSQIP, process measure data was compared to COVID-19 case volume in [REDACTED] across the study epoch.
Results
Twenty-nine hospitals participated in the project from July 2020 through September 2021. Data was collected on 4,948 hypertensive events representing 4,678 unique patients. In aggregate, the primary process measure (timely and appropriate treatment) demonstrated a 19.3% increase (from baseline of 56.5% to 67.4%, $p < 0.001$). The secondary process measures demonstrated significant increases ranging 26.1% to 166.8% (all $p < 0.001$). Both non-Hispanic Black and White pregnant or postpartum people demonstrated shifts and sustained improvements in the treatment of severe hypertension, which did not differ by race across the study period. Notably, process measure improvements were achieved and sustained across peaks in the COVID-19 pandemic.
Conclusion
This [REDACTED] MSQIP demonstrated meaningful changes in project process measures in the identification and treatment of severe hypertension in pregnancy and the postpartum period. Process measures improvements were achieved across all hospital levels of maternal care and differences were not observed by race or ethnicity. Our findings suggest that a robust and comprehensive QI initiative with appropriate support and resources can achieve meaningful gains in the setting of a global pandemic. (Author)
Full URL: https://doi.org/10.1016/j.ajogmf.2023.100912

2023-04489

SARS-CoV-2 placentitis and severe pregnancy outcome after maternal infection: A Danish case series. Nielsen SY, Hvidman LE, Aabakke AJM, et al (2023), Acta Obstetricia et Gynecologica Scandinavica vol 102, no 5, May 2023, pp. 567-576

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Introduction
SARS-CoV-2 infection during pregnancy may cause viral inflammation of the placenta, resulting in fetal demise even without fetal or newborn infection. The impact of timing of the infection and the mechanisms that cause fetal morbidity and mortality are not well understood.

Material and methods
To describe placental pathology from women with confirmed SARS-CoV-2 infection during pregnancy, a SARS-CoV-2 immunohistochemistry-positive placenta and late miscarriage, stillbirth, neonatal death, or medically indicated birth due to fetal distress.

Results
The triad of trophoblastic necrosis, inflammatory intervillous infiltrates, and increased perivillous fibrinoid deposition was present in all 17 placentas; the pregnancies resulted in eight stillbirths, two late miscarriages (19 and 21 weeks' gestation), and seven liveborn children, two of which died shortly after delivery. The severity of maternal COVID-19 was not reflected by the extent of the placental lesions. In only one case, SARS-CoV-2 was detected in lung tissue samples from the fetus. The majority events (miscarriage, stillbirth, fetal distress resulting in indicated birth, or livebirth, but neonatal death) happened shortly after maternal SARS-CoV-2 infection was diagnosed. Seven of eight sequenced cases were infected with the Delta (B.1.617.2) virus strain.

Conclusion
We consolidate findings from previous case series describing extensive SARS-CoV-2 placentitis and placental insufficiency leading to fetal hypoxia. We found sparse evidence to support the notion that SARS-CoV-2 virus had infected the fetus or newborn. (Author)
Full URL: https://doi.org/10.1111/aogs.14541

2023-04409

Maternity care a 'postcode lottery' in London. Warren J (2023), BBC News 14 April 2023

Londoners were subjected to a "postcode lottery" in the provision of maternal health services during the pandemic, a report found. (Author)
Full URL: https://www.bbc.co.uk/news/uk-england-london-65263610?at_medium=RSS&at_campaign=KARANGA

2023-04293

The Impact of the COVID-19 Pandemic on Pregnant Women: A Qualitative Approach. Uludağ E, Türkcü SG, Serçekuş P, et al (2022), International Journal of Childbirth vol 13, no 1, 2022

BACKGROUND: Pregnant women are one of the special groups most affected by the COVID-19 pandemic. The aim of this study was to analyze how the COVID-19 pandemic influenced the feelings, thoughts, and behaviors of pregnant women.

METHOD: A descriptive phenomenological approach was employed to explore the experiences of 15 pregnant women. Data were gathered by using semi-structured interviews focusing on pregnant women's feelings, thoughts and behaviors. Word cloud analysis and content analysis were performed.

FINDINGS: Data analysis revealed three main themes: emotions, hardships, and coping. Emotions were grouped into five categories: fear, anxiety, disappointment, loneliness, and regret. Hardships were grouped into two categories: physical and financial. Coping was grouped into four categories: social support, normalization, religious practices, and positive thinking. According to word cloud analysis, the most frequently mentioned words were pregnant, COVID-19, anxiety, fear, positive thinking, hardships, regret, stress, affect, and alone.

CONCLUSIONS: Women experienced feelings of fear, anxiety, disappointment, loneliness, and regret in the prenatal

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period. They also faced physical and financial hardships and benefited from social support, normalization, religious practices, and positive thinking to cope with these hardships. (Author)

2023-04099

"It was just one moment that I felt like I was being judged": Pregnant and postpartum black Women's experiences of personal and group-based racism during the COVID-19 pandemic. Chambers BD, Fontenot J, McKenzie-Sampson S, et al (2023), Social Science and Medicine vol 322, April 2023, 115813

Background

Racial inequities in maternal and child health outcomes persist: Black women and birthing people experience higher rates of adverse outcomes than their white counterparts. Similar inequities are seen in coronavirus disease (COVID-19) mortality rates. In response, we sought to explore the intersections of racism and the COVID-19 pandemic impact on the daily lives and perinatal care experiences of Black birthing people.

Methods

We used an intrinsic case study approach grounded in an intersectional lens to collect stories from Black pregnant and postpartum people residing in Fresno County (July–September 2020). All interviews were conducted on Zoom without video and were audio recorded and transcribed. Thematic analysis was used to group codes into larger themes.

Results

Of the 34 participants included in this analysis, 76.5% identified as Black only, and 23.5% identified as multiracial including Black. Their mean age was 27.2 years [SD, 5.8]. Nearly half (47%) reported being married or living with their partner; all were eligible for Medi-Cal insurance. Interview times ranged from 23 to 96 min. Five themes emerged: (1) Tensions about Heightened Exposure of Black Lives Matter Movement during the pandemic; (2) Fear for Black Son's Safety; (3) Lack of Communication from Health Care Professionals; (4) Disrespect from Health Care Professionals; and (5) Misunderstood or Judged by Health Care Professionals. Participants stressed that the Black Lives Matter Movement is necessary and highlighted that society views their Black sons as a threat. They also reported experiencing unfair treatment and harassment while seeking perinatal care.

Conclusions

Black women and birthing people shared that exposure to racism has heightened during the COVID-19 pandemic, increasing their levels of stress and anxiety. Understanding how racism impacts Black birthing people's lives and care experiences is critical to reforming the police force and revising enhanced prenatal care models to better address their needs. (Author)

Full URL: https://doi.org/10.1016/j.socscimed.2023.115813

2023-04065

Strategies to Address COVID-19 Vaccine and Pregnancy Myths. Berkowitz HE, Jacobson Vann JC (2023), MCN - American Journal of Maternal/Child Nursing vol 48, no 4, July/August 2023, pp 215-223

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) poses risks to pregnant women and their infants. The spread of misinformation about COVID-19 vaccination is a barrier to optimizing vaccination rates among women of childbearing age. We conducted an environmental scan to identify misinformation about COVID-19 vaccination, pregnancy, and fertility, and a review to identify evidence to refute misinformation and strategies to correct and prevent the spread of misinformation. Seven identified themes of misinformation are: the vaccine causes female infertility, can cause miscarriage, and can decrease male fertility; mRNA vaccines attack the placenta; pregnant and breastfeeding persons should not get the vaccine; the vaccine can change menstrual cycles; and vaccinated people can spread infertility symptoms to unvaccinated people. Strategies that can be implemented by social media platforms to help prevent misinformation spread and correct existing health misinformation include improving information regulation by modifying community standards, implementing surveillance algorithms, and applying warning labels to potentially misleading posts. Health services organizations and clinicians can implement health misinformation

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policies, directly recommend vaccinations, provide credible explanations and resources to debunk misinformation, educate patients and populations on spotting misinformation, and apply effective communication strategies. More research is needed to assess longer-term effects of vaccination among women of childbearing age to strengthen the defense against misinformation and to evaluate strategies that aim to prevent and correct misinformation spread about COVID-19 vaccinations. (Author)

2023-03981

COVID-19 and obstetric outcomes: a single-center retrospective experience in a predominantly Black population. Kuriloff M, Patel E, Mueller A, et al (2023), Journal of Maternal-Fetal and Neonatal Medicine vol 36, no 1, 2023, 2196364

Objective: This retrospective, single-center case series was designed to characterize the effects of perinatal COVID-19 diagnosis on obstetric and neonatal outcomes in a predominantly high-risk, urban Black population.

Study Design: Data were collected via retrospective chart review on all COVID-19-positive obstetric patients and their neonates who presented to the University of Chicago Medical Center between March 2020 and November 2020, before the availability of the COVID-19 vaccine. Patient demographics, delivery outcomes, COVID-19 symptoms, treatment, and outcomes were analyzed.

Results: A total of 56 COVID-19-positive obstetric patients were included in the study, of which four were lost to follow-up before delivery. The median age of patients was 27 years (IQR 23, 32), with 73.2% publicly insured and 66.1% Black. Patients had a median body mass index (BMI) of 31.6 kg/m2 (IQR 25.9, 35.5). 3.6% of patients had chronic hypertension, 12.5% had diabetes, and 16.1% had asthma. Perinatal complications were common. Twenty-six patients (50.0%) had a diagnosis of a hypertensive disorder of pregnancy (HDP). 28.8% had gestational hypertension, and 21.2% had preeclampsia (with and without severe features). The rate of maternal ICU admission was 3.6%. Furthermore, 23.5% of patients delivered preterm (<37 weeks gestation), and 50.9% of infants were admitted to the Neonatal Intensive Care Unit (NICU).

Conclusion: In our study of a predominantly Black, publicly-insured, unvaccinated group of COVID-19-positive pregnant patients, we found high rates of hypertensive disorders of pregnancy, preterm delivery, and NICU admission compared to rates reported in existing literature before widespread vaccine availability. Our findings suggest that SARS-CoV-2 infection during pregnancy, irrespective of maternal disease severity, may exacerbate existing obstetric health disparities by disproportionately impacting Black, publicly insured patients. Larger comparative studies are needed to better characterize possible racial and socioeconomic disparities in obstetric outcomes in the setting of SARS-CoV-2 infection during pregnancy. These studies should examine the pathophysiology of SARS-CoV-2 infection during pregnancy, as well as potential associations between adverse perinatal outcomes and disparities in access to care, COVID-19 vaccination, and other social determinants of health amongst more vulnerable populations infected with SARS-CoV-2 during pregnancy. (Author)

Full URL: https://doi.org/10.1080/14767058.2023.2196364

2023-03976

Effects of COVID-19 home quarantine on pregnancy outcomes of patients with gestational diabetes mellitus: a retrospective cohort study. Cai Q-Y, Yang Y, Ruan L-L, et al (2023), Journal of Maternal-Fetal and Neonatal Medicine vol 36, no 1, 2023, 2193284

Objective

This study aimed to evaluate the effects of the home quarantine on pregnancy outcomes of gestational diabetes mellitus (GDM) patients during the COVID-19 outbreak.

Methods

The complete electronic medical records of patients with GDM with home quarantine history were collected and classified into the home quarantine group from 24 February 2020 to 24 November 2020. The same period of patients

with GDM without home quarantine history were included in the control group from 2018 to 2019. The pregnant outcomes of the home quarantine and control groups were systematically compared, such as neonatal weight, head circumference, body length, one-minute Apgar score, fetal macrosomia, and pre-term delivery.

Results

A total of 1358 patients with GDM were included in the analysis, including 484 in 2018, 468 in 2019, and 406 in 2020. Patients with GDM with home quarantine in 2020 had higher glycemic levels and adverse pregnancy outcomes than in 2018 and 2019, including higher cesarean section rates, lower Apgar scores, and higher incidence of macrosomia and umbilical cord around the neck. More importantly, the second trimester of home quarantine had brought a broader impact on pregnant women and fetuses.

Conclusion

Home quarantine has aggravated the condition of GDM pregnant women and brought more adverse pregnancy outcomes during the COVID-19 outbreak. Therefore, we suggested governments and hospitals strengthen lifestyle guidance, glucose management, and antenatal care for patients with GDM with home quarantine during public health emergencies. (Author)

Full URL: https://doi.org/10.1080/14767058.2023.2193284

2023-03964

The impact of COVID-19 pandemic on obstetrics and gynecology hospitalization rate and on reasons for seeking emergency care: a systematic review and meta-analysis. Carbone L, Raffone A, Travaglino A, et al (2023), Journal of Maternal-Fetal and Neonatal Medicine vol 36, no 1, 2023, 2187254

Background

During the lockdown due to COVID-19 pandemic, utilization of emergency care units has been reported to be reduced for obstetrical and gynaecological reasons. The aim of this systematic review is to assess if this phenomenon reduced the rate of hospitalizations for any reason and to evaluate the main reasons for seeking care in this subset of the population.

Methods

The search was conducted using the main electronic databases from January 2020 to May 2021. The studies were identified with the use of a combination of: “emergency department” OR “A&E” OR “emergency service” OR “emergency unit” OR “maternity service” AND “COVID-19” OR “COVID-19 pandemic” OR “SARS-COV-2” and “admission” OR “hospitalization”. All the studies that evaluated women going to obstetrics & gynecology emergency department (ED) during the COVID-19 pandemic for any reason were included.

Results

The pooled proportion (PP) of hospitalizations increased from 22.7 to 30.6% during the lockdown periods, in particular from 48.0 to 53.9% for delivery. The PP of pregnant women suffering from hypertensive disorders increased (2.6 vs 1.2%), as well as women having contractions (52 vs 43%) and rupture of membranes (12.0 vs 9.1%). Oppositely, the PP of women having pelvic pain (12.4 vs 14.4%), suspected ectopic pregnancy (1.8 vs 2.0), reduced fetal movements (3.0 vs 3.3%), vaginal bleeding both for obstetrical (11.7 vs 12.8%) and gynecological issues (7.4 vs 9.2%) slightly reduced.

Conclusion

During the lockdown, an increase in the proportion of hospitalizations for obstetrical and gynecological reasons has been registered, especially for labor symptoms and hypertensive disorders. (Author)

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2023-03953

From pandemic to syndemic: microbiota, pregnancy, and environment at a crossroad. Giovannini N, Lattuada D, Danusso

R, et al (2023), Journal of Maternal-Fetal and Neonatal Medicine vol 36, no 1, 2023, 2183738

Aim: SARS-CoV2 is the latest pandemic that have plagued the socio-health system as an epiphenomenon resulting from planetary resources abuse, crucial for biodiversity. The Anthropocene best defines the present epoch in which human activity irreversibly manipulates intricate and delicate geological and biological balances established over eons. The devastating ecological and socio-economic implications of COVID-19, underline the importance of updating the present pandemic framework to a syndemic. This paper stems from the need to suggest to scientists, doctors, and patients a mission that integrates responsibility from individual to collective health, from present to trans-generational, from human to the entire biotic network. Today's choices are crucial for the perspective on all levels: political, economic, and health as well as cultural.

Methods: Research on PubMed and other specific web-sites journal was performed on the topic “Microbiota”, “Covid-19”, “Pandemic”, “Zoonosis”, “SARS-CoV-2”, “Environmental Pollutants”, “Epigenetics”, “Fetal Programming”, “Human Extinction”. Data collected were analysed for an integrative model of interconnection between environment, pregnancy, SARS-CoV-2 infection, and microbiota. Moreover, systematic literature review allowed to summarise in a table information about the worst pandemics that afflicted the human species recently.

Results: This paper offers a broad view of the current pandemic starting with pregnancy, the moment when a new life begins and the health trajectories of the unborn child are defined, which will inevitably have repercussions on his well-being. The fundamental role of the biodiversity-rich microbiota in avoiding the development of severe infectious diseases, is therefore highlighted. It is imperative to adjust the current reductionist paradigm based on mostly immediate symptom management towards a broader understanding of the spatial interconnection of ecological niches with human health and the impacts of today's choices on the future. Health and healthcare are elitist rather than egalitarian, therefore focusing on environmental health forces us to make a concerted and systemic effort that challenges political and economic barriers, which are biologically senseless. A healthy microbiota is essential to well-being, both by preventing chronic degenerative conditions, the infectiousness and pathogenicity of bacterial and viral diseases. SARS-CoV-2 should not be an exception. The human microbiota, forged by the first 1,000 days of life, is fundamental in shaping the health-disease trajectories, and by the everlasting exposome that is dramatically affected by the ecological disaster. Individual health is one world health whereas single and global well-being are interdependent in a space-time perspective.

Conclusions: Is it not a convenient reductionism not to consider the COVID-19 emergency as a bio-social epiphenomenon of a far more devastating and multi-faceted crisis whose common denominator is the global biotic network loss of which humans are still part? (Author)

Full URL: https://doi.org/10.1080/14767058.2023.2183738

2023-03830

Impact of COVID-19 during pregnancy on placental pathology, maternal and neonatal outcome – A cross-sectional study on anemic term pregnant women from a tertiary care hospital in southern India. Surekha MV, Suneetha N, Balakrishna N, et al (2023), Frontiers in Endocrinology 21 March 2023, online

Background: SARS-CoV-2 infection during pregnancy may cause adverse maternal, neonatal and placental outcomes. While tissue hypoxia is often reported in COVID-19 patients, pregnant women with anemia are suspected to be more prone to placental hypoxia-related injuries.

Methods: This hospital-based cross-sectional study was conducted between August-November 2021, during COVID-19 second wave in India. Term pregnant women (N=212) admitted to hospital for delivery were enrolled consecutively. Since hospital admission mandated negative RT-PCR test for SARS-CoV-2 virus, none had active infection. Data on socio-demography, COVID-19 history, maternal, obstetric, and neonatal outcomes were recorded. Pre-delivery maternal and post-delivery cord blood samples were tested for hematological parameters and SARS-CoV-2 IgG. Placentae were studied for histology.

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Results: Of 212 women, 122 (58%) were seropositive for SARS-CoV-2 IgG, but none reported COVID-19 history; 134 (63.2%) were anemic. In seropositive women, hemoglobin (p=0.04), total WBC (p=0.009), lymphocytes (p=0.005) and neutrophils (p=0.02) were significantly higher, while ferritin was high, but not significant and neutrophils to lymphocytes (p=0.12) and platelets to lymphocytes ratios (p=0.03) were lower. Neonatal outcomes were similar. All RBC parameters and serum ferritin were significantly lower in anemic mothers but not in cord blood, except RDW that was significantly higher in both, maternal (p=0.007) and cord (p=0.008) blood from seropositive anemic group compared to other groups. Placental histology showed significant increase in villous hypervascularity (p=0.000), dilated villous capillaries (p=0.000), and syncytiotrophoblasts (p=0.02) in seropositive group, typically suggesting placental hypoxia. Maternal anemia was not associated with any histological parameters. Univariate and multivariate logistic regression analyses of placental histopathological adverse outcomes showed strong association with SARS-CoV-2 seropositivity but not with maternal anemia. When adjusted for several covariates, including anemia, SARS-CoV-2 seropositivity emerged as independent risk factor for severe chorangiosis (AOR 8.74, 95% CI 3.51-21.76, p<0.000), dilated blood vessels (AOR 12.74, 95% CI 5.46-29.75, p<0.000), syncytiotrophoblasts (AOR 2.86, 95% CI 1.36-5.99, p=0.005) and villus agglutination (AOR 9.27, 95% CI 3.68-23.32, p<0.000).

Conclusion: Asymptomatic COVID-19 during pregnancy seemed to be associated with various abnormal placental histopathologic changes related to placental hypoxia independent of maternal anemia status. Our data supports an independent role of SARS-CoV-2 in causing placental hypoxia in pregnant women. (Author)

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2023-03708

Risk for stillbirth among pregnant individuals with SARS-CoV-2 infection varied by gestational age. Lyu T, Liang C, Liu J, et al (2023), American Journal of Obstetrics & Gynecology (AJOG) vol 229, no 3, September 2023, pp 288.e1-288.e13

Background

Despite previous research findings on higher risks of stillbirth among pregnant individuals with SARS-CoV-2 infection, it is unclear whether the gestational timing of viral infection modulates this risk.

Objective

This study aimed to examine the association between timing of SARS-CoV-2 infection during pregnancy and risk of stillbirth.

Study Design

This retrospective cohort study used multilevel logistic regression analyses of nationwide electronic health records in the United States. Data were from 75 healthcare systems and institutes across 50 states. A total of 191,403 pregnancies of 190,738 individuals of reproductive age (15–49 years) who had childbirth between March 1, 2020 and May 31, 2021 were identified and included. The main outcome was stillbirth at ≥20 weeks of gestation. Exposures were the timing of SARS-CoV-2 infection: early pregnancy (<20 weeks), midpregnancy (21–27 weeks), the third trimester (28–43 weeks), any time before delivery, and never infected (reference).

Results

We identified 2342 (1.3%) pregnancies with COVID-19 in early pregnancy, 2075 (1.2%) in midpregnancy, and 12,697 (6.9%) in the third trimester. After adjusting for maternal and clinical characteristics, increased odds of stillbirth were observed among pregnant individuals with SARS-CoV-2 infection only in early pregnancy (odds ratio, 1.75, 95% confidence interval, 1.25–2.46) and midpregnancy (odds ratio, 2.09; 95% confidence interval, 1.49–2.93), as opposed to pregnant individuals who were never infected. Older age, Black race, hypertension, acute respiratory distress syndrome or acute respiratory failure, and placental abruption were found to be consistently associated with stillbirth across different trimesters.

Conclusion

Increased risk of stillbirth was associated with COVID-19 only when pregnant individuals were infected during early and midpregnancy, and not at any time before the delivery or during the third trimester, suggesting the potential vulnerability of the fetus to SARS-CoV-2 infection in early pregnancy. Our findings underscore the importance of proactive COVID-19 prevention and timely medical intervention for individuals infected with SARS-CoV-2 during early and midpregnancy. (Author)

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2023-03540

Neonatal outcomes and indirect consequences following maternal SARS-CoV-2 infection in pregnancy: a systematic review. Sturrock S, Ali S, Gale C, et al (2023), BMJ Open vol 13, no 3, February 2023, 063052

Objectives To identify the association between maternal SARS-CoV-2 infection in pregnancy and individual neonatal morbidities and outcomes, particularly longer-term outcomes such as neurodevelopment.

Design Systematic review of outcomes of neonates born to pregnant women diagnosed with a SARS-CoV-2 infection at any stage during pregnancy, including asymptomatic women.

Data sources MEDLINE, Embase, Global Health, WHOLIS and LILACS databases, last searched on 28 July 2021.

Eligibility criteria Case–control and cohort studies published after 1 January 2020, including preprint articles were included. Study outcomes included neonatal mortality and morbidity, preterm birth, caesarean delivery, small for gestational age, admission to neonatal intensive care unit, level of respiratory support required, diagnosis of culture-positive sepsis, evidence of brain injury, necrotising enterocolitis, visual or hearing impairment, neurodevelopmental outcomes and feeding method. These were selected according to a core outcome set.

Data extraction and synthesis Data were extracted into Microsoft Excel by two researchers, with statistical analysis completed using IBM SPSS (Version 27). Risk of bias was assessed using a modified Newcastle-Ottawa Scale.

Results The search returned 3234 papers, from which 204 were included with a total of 45 646 infants born to mothers with SARS-CoV-2 infection during pregnancy across 36 countries. We found limited evidence of an increased risk of some neonatal morbidities, including respiratory disease. There was minimal evidence from low-income settings (1 study) and for neonatal outcomes following first trimester infection (17 studies). Neonatal mortality was very rare. Preterm birth, neonatal unit admission and small for gestational age status were more common in infants born following maternal SARS-CoV-2 infection in pregnancy in most larger studies.

Conclusions There are limited data on neonatal morbidity and mortality following maternal SARS-CoV-2 infection, particularly from low-income countries and following early pregnancy infections. Large, representative studies addressing these outcomes are needed to understand the consequences for babies born to women with SARS-CoV-2. (Author)

Full URL: http://dx.doi.org/10.1136/bmjopen-2022-063052

2023-03529

Pregnant Women's Concerns Regarding COVID-19 and Their Willingness to Be Vaccinated. Mitchell SL, Strassberg E, Rhoades C, et al (2023), Journal of Women's Health vol 32, no 5, May 2023, pp 513–520

Objectives: We investigated coronavirus disease 2019 (COVID-19) opinions, experiences, and willingness to accept COVID-19 vaccination during pregnancy at two prenatal clinics in early 2021 and early 2022.

Materials and Methods: Paper questionnaires were distributed to pregnant women at prenatal care facilities in Virginia and Florida between January and April 2021 and January and April 2022. Questions regarding acceptance and opinions of the influenza vaccine served as a baseline to assess COVID-19 vaccine opinions. Associations between demographic parameters and vaccine opinions and acceptance were examined using Chi-square. A COVID-19 concern score was constructed by principal component analysis with differences between groups assessed by analysis of variance (ANOVA) and analysis of covariance (ANCOVA).

Results: Many participants (40.6%) reported that the COVID pandemic had affected their pregnancy. Main themes

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were problems with social networks, increased stress/anxiety, and being more cautious. In 2021, 19.5% reported they would accept a COVID-19 vaccination during their pregnancy, which increased to 45.8% in 2022. Vaccine hesitancy did not vary by race or between sites, but educational attainment was significant ($p < 0.001$). Women with a higher concern score were more likely to report they would accept a COVID-19 vaccine. Women who would accept COVID vaccination had a positive opinion regarding the influenza vaccine. Main themes for refusing COVID-19 vaccination were concerns about side effects, lack of research/data, and mistrust of vaccines.

Conclusions: The proportion of women willing to accept COVID-19 vaccination increased but remained below 50%. Willingness to accept vaccination during pregnancy was associated with higher education, higher concern about COVID-19, and a positive opinion of the influenza vaccine. (Author)

2023-03508

Pregnancy during the pandemic: the impact of COVID-19-related stress on risk for prenatal depression. King LS, Feddoes DE, Kirshenbaum JS, et al (2023), Psychological Medicine vol 53, no 1, January 2023, pp 170-180

Background

Pregnant women may be especially susceptible to negative events (i.e. adversity) related to the coronavirus disease 2019 (COVID-19) pandemic and negative affective responses to these events (i.e. stress). We examined the latent structure of stress and adversity related to the COVID-19 pandemic among pregnant women, potential antecedents of COVID-19-related stress and adversity in this population, and associations with prenatal depressive symptoms.

Method

We surveyed 725 pregnant women residing in the San Francisco Bay Area in March–May 2020, 343 of whom provided addresses that were geocoded and matched by census tract to measures of community-level risk. We compared their self-reported depressive symptoms to women matched on demographic factors and history of mental health difficulties who were pregnant prior to the pandemic.

Results

Women who were pregnant during the pandemic were nearly twice as likely to have possible depression than were matched women who were pregnant prior to the pandemic. Individual- and community-level factors tied to socioeconomic inequality were associated with latent factors of COVID-19-related stress and adversity. Beyond objective adversity, subjective stress responses were strongly associated with depressive symptoms during the pandemic.

Conclusions

Highlighting the role of subjective responses in vulnerability to prenatal depression and factors that influence susceptibility to COVID-19-related stress, these findings inform the allocation of resources to support recovery from this pandemic and future disease outbreaks. In addition to policies that mitigate disruptions to the environment due to the pandemic, treatments that focus on cognitions about the self and the environment may help to alleviate depressive symptoms in pregnant women. (Author)

2023-03456

Fetal neurosonography in pregnant women recovering from COVID-19 disease. Akgün Aktas B, Kaya E, Laleli Koc B, et al (2023), International Journal of Gynecology & Obstetrics vol 162, no 2, August 2023, pp 737-743

Objective

To investigate the effect of severe acute respiratory virus 2 (SARS-CoV-2) on fetal neurodevelopment in pregnant women.

Methods

This prospective cohort study included 54 pregnant women at least 4 weeks after the SARS-CoV-2 infection and 58

controls. In the third trimester, the depths of the fetal insula, Sylvian, parieto-occipital, and calcarine fissures, the length of cavum septum pellucidum (CSP), and the thickness of the corpus callosum (CC) were measured. Sylvian fissure operculization and cortical development were graded. The correlation analysis between fetal cortical development and Sylvian fissure operculization was performed with the Pearson test.

Results

The calcarine fissure depth and CC thickness were reduced in the study group ($P < 0.001$, $P = 0.004$). The fetal CSP length and ratio were increased in the study group ($P = 0.016$, $P = 0.039$). Approximately half of the study group fetuses had grade 4 or less Sylvian fissure operculization. The study group had a significantly higher rate of fetuses with grade 2 (31.5% vs. 13.8%) and significantly lower rate of fetuses with grade 4 cortical development (14.8% vs. 31.0%), compared with the controls. There was a moderate negative significant correlation between pregnant women recovering from COVID-19 and fetal cortical development and Sylvian fissure operculization ($P = 0.001$).

Conclusion

This is the first study to investigate fetal cortical development in pregnant women recovering from COVID-19. The results indicate that COVID-19 disease may affect fetal neurodevelopment. (Author)

2023-03441

Lessons from digital technology-enabled health interventions implemented during the coronavirus pandemic to improve maternal and birth outcomes: a global scoping review. Moise IK, Ivanova N, Wilson C, et al (2023), BMC Pregnancy and Childbirth vol 23, no 195, March 2023

Background

Timely access to essential obstetric and gynecologic healthcare is an effective method for improving maternal and neonatal outcomes; however, the COVID-19 pandemic impacted pregnancy care globally. In this global scoping review, we select and investigate peer-reviewed empirical studies related to mHealth and telehealth implemented during the pandemic to support pregnancy care and to improve birth outcomes.

Methods

We searched MEDLINE and PubMed, Scopus, CINAHL and Web of Science for this Review because they include peer-reviewed literature in the disciplines of behavioral sciences, medicine, clinical sciences, health-care systems, and psychology. Because our investigative searches reviewed that there is considerable 'grey literature' in this area; we did not restrict our review to any study design, methods, or place of publication. In this Review, peer-reviewed preprints were comparable to published peer-reviewed articles, with relevant articles screened accordingly.

Results

The search identified 1851 peer reviewed articles, and after removal of duplicates, using inclusion and exclusion criteria, only 22 studies were eligible for inclusion in the review published from January 2020 to May 2022. mHealth interventions accounted for 72.7% (16 of 22 studies) and only 27.3% (6 of 22 studies) were telehealth studies. There were only 3 example studies that integrated digital technologies into healthcare systems and only 3 studies that developed and evaluated the feasibility of mobile apps. Experimental studies accounted 68.8% of mHealth studies and only 33.3% studies of telehealth studies. Key functionalities of the pregnancy apps and telehealth platforms focused on mental and physical wellness, health promotion, patient tracking, health education, and parenting support. Implemented interventions ranged from breastfeeding and selfcare to behavioral health. Facilitators of uptake included perceived benefits, user satisfaction and convenience. Mobile apps and short messaging services were the primary technologies employed in the implemented mHealth interventions.

Conclusion

Although our Review emphasizes a lack of studies on mHealth interventions and data from pregnant women during the COVID-19 crisis, the review shows that implementation of digital health interventions during emergencies are inevitable given their potential for supporting pregnancy care. There is also a need for more randomized clinical trials

and longitudinal studies to better understand the effectiveness and feasibility of implementing such interventions during disease outbreaks and emergencies. (Author)

Full URL: https://doi.org/10.1186/s12884-023-05454-3

2023-03427

Exploring the antenatal care challenges faced during the COVID-19 pandemic in rural areas of Indonesia: a qualitative study. Anggraeni MD, Setiyani R, Triyanto E, et al (2023), BMC Pregnancy and Childbirth vol 23, no 179, March 2023

Introduction

The COVID-19 pandemic affected almost all healthcare services in Indonesia, including antenatal care (ANC). Pregnant women were a vulnerable group during the pandemic since the Indonesian government's policies at the time influenced the delivery of ANC services, particularly in rural areas. Investigating the ANC challenges faced during the pandemic from the perspectives of pregnant women and healthcare providers is important for our understanding of ANC provision. This study, therefore explores barriers to ANC appointments faced during the COVID-19 pandemic in rural areas of Indonesia from the perspectives of pregnant women and health care providers.

Methods

This was a qualitative exploratory descriptive study involving 31 participants, consisting of 25 pregnant women and six healthcare providers who were selected via a purposive sampling method. Thadeus and Maine's Three Delays Model was used as the theoretical framework. Data were collected between March and August 2021, through two focus group discussions (FGDs), ten in-depth interviews, and field notes. Data were analyzed using a thematic analysis method.

Results

Three themes describing barriers to ANC during the COVID-19 pandemic in rural areas of Indonesia emerged from this study. Those themes were: (1) The fear of being infected with COVID-19, related to anxiety, perceived vulnerability, and the desire to protect oneself and loved ones; (2) The stay-at-home policy, related to transport barriers and restricted social activity; and (3) Re-designed ANC services, related to ANC adjustments, high-risk pregnancies, insufficient information, and adherence to COVID-19 preventive behaviors.

Conclusion

Based on the Three Delays Model, several challenges to carrying out ANC during the COVID-19 pandemic in rural areas of Indonesia were identified. These findings demonstrate the need to formulate and implement ANC packages to facilitate pregnant women's access to health care services. (Author)

Full URL: https://doi.org/10.1186/s12884-023-05495-8

2023-03346

Did everyone change their childbirth plans due to the COVID-19 pandemic? A web-based cross-sectional survey of Polish pregnant women. Feduniw S, Kajdy A, Sys D, et al (2023), Journal of Advanced Nursing vol 79, no 7, July 2023, pp 2664-2674

Background and Aim

With the worldwide outbreak of coronavirus, a significant impact has been observed on the functioning of healthcare systems and the process of childbirth. Women probably did not even have a choice to adjust their plans accordingly to the current situation. The aim of the study was to examine how the outbreak of the SARS CoV-2 pandemic state affected the decisions of pregnant women about their childbirth plan.

Design

This cross-sectional study was performed using a web-based survey published on social media in Poland.

Methods

The cross-sectional study was performed using web-based questionnaires. The study group included Polish women who changed their childbirth plans, compared to a group of women not sure about delivery plan change and those whose plans had not changed. The data were collected from 4 March 2020 to 2 May 2020, when the first rising count of new infections was observed in Poland and worldwide. Statistical analysis was performed using STATISTICA Software, Inc., 13.3 (2020).

Results

Of 969 women who completed the questionnaire and were enrolled into the study, 57.2% had not changed their childbirth plans (group I), 28.4% had changed their plans (group II), and 14.4% of respondents answered "not sure" to this question (group III). The majority of women changed their birth plans during the pandemic because of the potential absence of their partner during labour (56% of women who had changed their plans and 48% of those whose answer was "I am not sure", $p < .001$). Another reason was the fear of separation from the child after delivery (33% of women who had changed their plans and 30% of those whose answer was "I am not sure", $p < .001$).

Conclusion

Restrictions due to the COVID-19 outbreak have influenced the childbirth plans of pregnant women. The changes were independent of women's vision of birth before the pandemic.

Impact

The restriction on births with accompanying person and the risk of separation from their infant after childbirth significantly influenced the decision-making process. As a result, some women were more likely to opt for a home birth with or even without medical assistance.

Patient or Public Contribution

The study participants were women who were pregnant at the time of completing the questionnaire, were over 18 years old and spoke Polish. (Author)

2023-03280

Changes in Pregnancy-Related Mortality Associated With the Coronavirus Disease 2019 (COVID-19) Pandemic in the United States. Thoma ME, Declercq ER (2023), Obstetrics & Gynecology vol 141, no 5, May 2023, pp 911-917

OBJECTIVE:

To examine pregnancy-related mortality ratios before (January 2019–March 2020) and during (April 2020–December 2020 and 2021) the coronavirus disease 2019 (COVID-19) pandemic overall, by race and ethnicity, and by rural–urban classifications using vital records data.

METHODS:

Mortality and natality data (2019–2021) were obtained from the Centers for Disease Control and Prevention's WONDER database to estimate pregnancy-related mortality ratios, which correspond to any death during pregnancy or up to 1 year after the end of a pregnancy from causes related to the pregnancy per 100,000 live births. Pregnancy-related mortality ratios were determined from International Classification of Diseases, Tenth Revision codes A34, O00–O96, and O98–O99. Overall pregnancy-related mortality ratios were partitioned by whether COVID-19 was listed as a contributory cause, and quarterly estimates were compared between 2019 and 2021. Pregnancy-related mortality ratios were compared by race and ethnicity and rural–urban residence before (2019–March 2020) and during (April 2020–December 2020 and 2021) the COVID-19 pandemic.

RESULTS:

Pregnancy-related mortality was significantly higher in 2021 (45.5/100,000 live births) compared with during the pandemic in 2020 (36.7/100,000 live births) and before the pandemic (29.0/100,000 live births). Pregnancy-related mortality ratios increased across all race and ethnicity and rural–urban residence categories in 2021. The largest increase occurred among American Indian/Alaska Native people during 2021 compared with April–December of 2020

(pregnancy-related mortality ratio 160.8 vs 79.0/100,000 live births, 104% relative change, P=.017). Medium–small metropolitan (52.4 vs 37.7/100,000 live births, 39.0% relative change, P<.001) and rural (56.2 vs 46.5/100,000 live births, 21.0% relative change, P=.05) areas had a larger increase in 2021 compared with April–December 2020 compared with large urban areas (39.1 vs 33.7/100,000 live births, 15.9% relative change, P=.009).

CONCLUSION:
Pregnancy-related mortality ratios increased more rapidly in 2021 than in 2020, consistent with rising rates of COVID-19–associated mortality among women of reproductive age. This further exacerbated racial and ethnic disparities, especially among American Indian/Alaska Native birthing people.

In 2020, the United States reported a pandemic-specific rate of 25.1 maternal deaths and 11.6 late maternal deaths per 100,000 live births, a 33% and 41% relative increase over prepandemic years, respectively.1 Studies indicate that unvaccinated pregnant people are more likely to develop severe coronavirus disease 2019 (COVID-19) illness.2–4 During the early period of the COVID-19 pandemic, the health of birthing and postpartum people may also have been indirectly affected, because this period of transition resulted in changes in prenatal care delivery and utilization,5,6 access to a birthing partner at delivery,7,8 and general isolation from traditional sources of postpartum health care and social support.9,10

However, questions remained regarding the continued effect of the pandemic on pregnant and postpartum people in 2021, when vaccines became widely available.11,12 The latter part of 2021 also saw the emergence of more transmissible severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) variants.11 Using 2019–2021 mortality data, we compared pregnancy-related mortality ratios between 2019 and 2021. We further compared detailed race and ethnicity and rural–urban residence categories before (January 2019–March 2020) and during (April 2020–December 2020 and 2021) the COVID-19 pandemic. (Author)

2023-03278

Nirmatrelvir–Ritonavir (Paxlovid) for Mild Coronavirus Disease 2019 (COVID-19) in Pregnancy and Lactation. Lin C, Cassidy AG, Li L, et al (2023), Obstetrics & Gynecology vol 141, no 5, May 2023, pp 957-960

Nirmatrelvir–ritonavir (Paxlovid) is recommended to reduce the risk of hospitalization from coronavirus disease 2019 (COVID-19) in pregnancy. Data on use in pregnancy, including prescribing patterns and patient experience (adverse effects, incidence of rebound), are limited. We performed a cross-sectional study in which we surveyed a cohort of vaccinated pregnant or lactating individuals with breakthrough COVID-19. Of 35 pregnant respondents, 51.4% were prescribed and 34.3% took nirmatrelvir–ritonavir; of these, 91.7% experienced dysgeusia and 50.0% had rebound (50.0% positive test result, 33.3% return of symptoms). Three of five lactating respondents were prescribed and two took nirmatrelvir–ritonavir. There were no significant adverse outcomes. Unknown risk was the most common reason for declining nirmatrelvir–ritonavir. More research is needed to establish the safety of nirmatrelvir–ritonavir in pregnancy and lactation, to improve public health messaging, and to increase uptake of this treatment.

Nirmatrelvir–ritonavir (Paxlovid) reduces the risk of hospitalization and death resulting from coronavirus disease 2019 (COVID-19) in populations at high risk,1 but data in pregnancy and lactation are lacking. Leading professional societies support its use in pregnancy.2,3 Patient experience, such as adverse effects and incidence of rebound symptoms, has not been reported in these groups.

We surveyed a vaccinated cohort of pregnant or lactating individuals about their experience with nirmatrelvir–ritonavir for COVID-19. We aimed to assess the patient clinical experience after treatment, including the rate of rebound symptoms. (Author)

2023-03174

Clinical outcome in newborns of perinatally COVID-19 infected women. Syridou G, Kapsabeli E, Mavridi A, et al (2023),

Journal of Maternal-Fetal and Neonatal Medicine vol 36, no 1, 2023, 2183752

Objective

Maternal COVID-19 infection during pregnancy has been associated with adverse neonatal outcomes, such as prematurity and neonatal morbidity. Those adverse events are mainly attributed to maternal factors, rather than to the neonatal infection itself. Our aim is to add our experience and present the neonatal outcome of neonates born to mothers with perinatal SARS-CoV-2 infection.

Methods

This is a prospective case-control study with data from two Academic Tertiary Referral Hospitals in Greece. Electronic records of all births from SARS-CoV-2 positive mothers between March 2020 and April 2021 were analyzed. Demographic data, the severity of maternal COVID-19 disease, gestational age (GA), mode of delivery, birth weight (BW), need for resuscitation and/or supplemental oxygen and duration of hospitalization were recorded. A comparison with 2:1 matched neonates according to sex, GA, and BW born to SARS-CoV-2 negative mothers during the same period was performed. Chi-square and Mann–Whitney U test were used for categorical and non-categorical variables respectively.

Results

A total of eighty-one neonates were born to SARS-CoV-2 positive mothers during this period. Forty-three percent of pregnant mothers were asymptomatic. Median GA and median BW were 38 weeks (Interquantile range (IQR): 36–39 weeks) and 2940 gr (IQR: 2560–3340 gr) respectively. Prematurity was observed in 24.7% of the cases. Only 2 (2.4%) neonates were PCR positive after delivery. SARS-CoV-2 positive women were more likely to undergo Cesarean section. APGAR score at 5 min and the need for resuscitation did not differ between the two groups. In comparison with the control group, neonates born to SARS-CoV-2 positive mothers presented with gastrointestinal symptoms (53.6% vs 5.1%, p-value= <.001) and hospitalization was longer, mostly due to maternal factors.

Conclusion

In our study neonatal positivity was limited and no vertical transmission was noted. Neonatal outcomes were comparable to the control group. However, the presence of gastrointestinal symptoms in neonates born to PCR-positive women compared to controls needs further investigation. (Author)

Full URL: https://doi.org/10.1080/14767058.2023.2183752

2023-03160

Covid-19: US maternal mortality rose during pandemic. Tanne JH (2023), British Medical Journal 20 March 2023, online

Two studies show that maternal mortality in the US dramatically increased during the covid-19 pandemic and was especially severe among racial and ethnic minorities and in rural areas and small cities. (Author)

2023-03149

Anxiety, stress, and depression in Australian pregnant women during the COVID-19 pandemic: A cross sectional study. Davis D, Sheehy A, Nightingale H, et al (2023), Midwifery vol 119, April 2023, 103619

Background

The COVID-19 pandemic necessitated rapid responses by health services to suppress transmission of the virus.

Aim

This study aimed to investigate predictors of anxiety, stress and depression in Australian pregnant women during the COVID-19 pandemic including continuity of carer and the role of social support.

Methods

Women aged 18 years and over in their third trimester of pregnancy were invited to complete an online survey between July 2020 and January 2021. The survey included validated tools for anxiety, stress, and depression.

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Regression modelling was used to identify associations between a range of factors including continuity of carer, and mental health measures.

Findings
1668 women completed the survey. One quarter screened positive for depression, 19% for moderate or higher range anxiety, and 15.5% for stress. The most significant contribution to higher anxiety, stress, and depression scores was a pre-existing mental health condition, followed by financial strain and a current complex pregnancy. Protective factors included age, social support, and parity.

Discussion
Maternity care strategies to reduce COVID-19 transmission restricted women's access to their customary pregnancy supports and increased their psychological morbidity.

Conclusion
Factors associated with anxiety, stress and depression scores during the COVID-19 pandemic were identified. Maternity care during the pandemic compromised pregnant women's support systems. (Author)

2023-03134

Social support and mental health in maternity: Effects of the COVID-19 pandemic. Tania AT, Natalia AR, Verónica VB, et al (2023), Midwifery vol 118, March 2023, 103580

Background
Motherhood involves a process of adaptation and the perception of social support influences mental health, breastfeeding or newborn care among others. The COVID-19 pandemic has generated a distancing from family, friends and health professionals.

Methods
Quantitative, descriptive, cross-sectional study. The present study aims to describe and analyze the social support and mental health of mothers during this period.

Methods
The sample were 179 women with children older than 6 months. The questionnaires used were the DUKE-UNC-11 and GHQ-12. Data analysis was carried out with Spearman's Rho and Mann Whitney U test.

Results
75.8% of the sample perceived normal social support during the pandemic. Within the dimensions of social support, women reported perceiving satisfactory confidential support, while affective support was perceived as low. Correlational analysis reported a significant relationship between mental health, confidential support and affective support. Group comparison noted greater confidential support in primiparous.

Conclusions
The sample is sensitive to changes originated by COVID-19 constraints influencing perceived social support and mental health. Affective and confidential support as well as the involvement of health professionals and the environment are fundamental for mental health during the first year of maternity.

Relevance to clinical practice
Mothers' mental health is sensitive and vulnerable to social changes, in this case, those that occurred as a consequence of the COVID-19 outbreak. (Author)

Full URL: https://doi.org/10.1016/j.midw.2022.103580

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2023-03112

First do no harm overlooked: Analysis of COVID-19 clinical guidance for maternal and newborn care from 101 countries shows breastfeeding widely undermined. Gribble K, Cashin J, Marinelli K, et al (2023), Frontiers in Global Women's Health 17 January 2023, online

Background: In March 2020, the World Health Organization (WHO) published clinical guidance for the care of newborns of mothers with COVID-19. Weighing the available evidence on SARS-CoV-2 infection against the well-established harms of maternal-infant separation, the WHO recommended maternal-infant proximity and breastfeeding even in the presence of maternal infection. Since then, the WHO's approach has been validated by further research. However, early in the pandemic there was poor global alignment with the WHO recommendations.

Methods: We assessed guidance documents collected in November and December 2020 from 101 countries and two regional agencies on the care of newborns of mothers with COVID-19 for alignment with the WHO recommendations. Recommendations considered were: (1) skin-to-skin contact; (2) early initiation of breastfeeding; (3) rooming-in; (4) direct breastfeeding; (5) provision of expressed breastmilk; (6) provision of donor human milk; (7) wet nursing; (8) provision of breastmilk substitutes; (9) relactation; (10) psychological support for separated mothers; and (11) psychological support for separated infants.

Results: In less than one-quarter of country guidance were the three key breastfeeding facilitation practices of skin-to-skin contact, rooming-in, and direct breastfeeding recommended. Donor human milk was recommended in under one-quarter of guidance. Psychological support for mothers separated from their infants was recommended in 38%. Few countries recommended relactation, wet nursing, or psychological support for infants separated from mothers. In three-quarters of country guidance, expressed breastmilk for infants unable to directly breastfeed was recommended. The WHO and the United Kingdom's Royal College of Obstetricians and Gynecologists were each cited by half of country guidance documents with the United States Centers for Disease Control and Prevention directly or indirectly cited by 40%.

Conclusion: Despite the WHO recommendations, many COVID-19 maternal and newborn care guidelines failed to recommend skin-to-skin contact, rooming-in, and breastfeeding as the standard of care. Irregular guidance updates and the discordant, but influential, guidance from the United States Centers for Disease Control may have been contributory. It appeared that once recommendations were made for separation or against breastfeeding they were difficult to reverse. In the absence of quality evidence on necessity, recommendations against breastfeeding should not be made in disease epidemics. (Author) [Erratum: Frontiers in Global Women's Health, 2 March 2023, Fig 6. https://doi.org/10.3389/fnut.2023.1166221]

Full URL: https://doi.org/10.3389/fnut.2022.1049610

2023-03086

Severe COVID-19 during pregnancy in Sweden, Norway, and Denmark. Örtqvist AK, Magnus MC, Aabakke AJM, et al (2023), Acta Obstetricia et Gynecologica Scandinavica vol 102, no 6, June 2023, pp 681-689

Introduction

Pregnancy is a risk factor for severe coronavirus disease 2019 (COVID-19) and adverse pregnancy outcomes. We aimed to explore maternal characteristics, pregnancy outcomes, vaccination status, and virus variants among pregnant women admitted to intensive care units (ICU) with severe COVID-19.

Material and methods

We identified pregnant women admitted to ICU in Sweden (n = 96), Norway (n = 31), and Denmark (n = 16) because of severe COVID-19, from national registers and clinical databases between March 2020 and February 2022 (Denmark), August 2022 (Sweden), or December 2022 (Norway). Their background characteristics, pregnancy outcome, and vaccination status were compared with all birthing women and severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) test-positive pregnant women during the same time period. We calculated the number admitted to ICU per 10 000 birthing and per 1000 SARS-CoV-2 test-positive women during the Index, Alpha, Delta, and Omicron

periods.

Results
Women admitted to ICU had a higher mean body mass index, were more often of non-Scandinavian origin, had on average lower education and income levels, had a higher proportion of chronic and pregnancy-related conditions, delivered preterm, had neonates with low Apgar scores, and had more infants admitted to neonatal care, compared with all birthing and test-positive pregnant women. Of those admitted to ICU, only 7% had been vaccinated before admission. Overall, the highest proportion of women admitted to ICU per birthing was during the Delta period (4.1 per 10 000 birthing women). In Norway, the highest proportion admitted to ICU per test-positive pregnant women was during the Delta period (17.8 per 1000 test-positive), whereas the highest proportion of admitted per test-positive in Sweden and Denmark was seen during the Index period (15.4 and 8.9 per 1000 test-positive, respectively).

Conclusions
Admission to ICU because of COVID-19 in pregnancy was a rare event in the Scandinavian countries, but women who were unvaccinated, of non-Scandinavian origin, and with lower socio-economic status were at higher risk of admission to ICU. In addition, women admitted to ICU for COVID-19 had higher risk of adverse pregnancy outcomes. (Author)
Full URL: https://doi.org/10.1111/aogs.14552

2023-03020

Early Discharge of Newborns Born to Mothers with COVID-19: A Possible Safe Strategy. Costa S, Coppola M, Fattore S, et al (2023), American Journal of Perinatology 24 January 2023, online

Objective In this study, we evaluated the safety of early discharge (ED) of newborns born to coronavirus disease 2019 (COVID-19)-positive mothers.

Study Design All ED newborns from the postpartum wards of the Fondazione Policlinico Gemelli between January 1, 2022, and February 28, 2022, were retrospectively analyzed. Newborns from mothers with COVID-19 and those from uninfected mothers were considered. The primary outcome was to evaluate whether the rate of the composite outcome, which was the percentage of rehospitalization/access in emergency room (RH/ER) within the first week from discharge, differed between neonates born to mother with COVID-19 (COVID-19 group) and those born to uninfected mothers (no COVID-19 group). The secondary outcomes were to assess the quality of feeding and number of outpatient visits in the follow-up clinic between the two cohorts of patients.

Results One hundred and thirty-four newborns in the no COVID-19 group and 26 in the COVID-19 group were analyzed. The rate of RH/ER in the no COVID-19 group was of 6 over 134 newborns (0.045, 95% confidence image [CI]: 0.017–0.095), while in COVID-19 group, it was of 2 over 26 newborns (0.077), which does not differ from the expected rate (1.17 over 26 newborns, 0.045, 95% CI: 0.017–0.095).

Conclusion ED for newborns from mothers with COVID-19 could be an actionable safe strategy. (Author)

2023-03000

Patterns of Prenatal Care Delivery and Obstetric Outcomes before and during the COVID-19 Pandemic. Kern-Goldberger AR, Sheils NE, Ventura MEM, et al (2023), American Journal of Perinatology vol 40, no 6, April 2023, pp 582-588

Objective Health care providers and health systems confronted new challenges to deliver timely, high-quality prenatal care during the coronavirus disease 2019 (COVID-19) pandemic as the pandemic raised concerns that care would be delayed or substantively changed. This study describes trends in prenatal care delivery in 2020 compared with 2018 to 2019 in a large, commercially insured population and investigates changes in obstetric care processes and outcomes.

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Study Design This retrospective cohort study uses de-identified administrative claims for commercially insured patients. Patients whose entire pregnancy took place from March 1 to December 31 in years 2018, 2019, and 2020 were included. Trends in prenatal care, including in-person, virtual, and emergency department visits, were evaluated, as were prenatal ultrasounds. The primary outcome was severe maternal morbidity (SMM). Secondary outcomes included preterm birth and stillbirth. To determine whether COVID-19 pandemic-related changes in prenatal care had an impact on maternal outcomes, we compared the outcome rates during the pandemic period in 2020 to equivalent periods in 2018 and 2019.

Results In total, 35,112 patients were included in the study. There was a significant increase in the prevalence of telehealth visits, from 1.1 to 1.2% prior to the pandemic to 17.2% in 2020, as well as a significant decrease in patients who had at least one emergency department visit during 2020. Overall prenatal care and ultrasound utilization were unchanged. The rate of SMM across this period was stable (2.3–2.8%) with a statistically significant decrease in the preterm birth rate in 2020 (7.4%) compared with previous years (8.2–8.6%; $p < 0.05$) and an unchanged stillbirth rate was observed.

Conclusion At a time when many fields of health care were reshaped during the pandemic, these observations reveal considerable resiliency in both the processes and outcomes of obstetric care. (Author)

2023-02976

Bilious Emesis and Failure to Pass Meconium in the Nursery: A Case Study. Bencze JM, Crotteau JA, Urbina TM, et al (2023), Neonatal Network: the Journal of Neonatal Nursing vol 42, no 1, January 2023, pp 31-36

We present a case of an infant born to a mother with COVID-19, who at 24 hours of life was treated with a glycerin suppository for failure to pass meconium and went on to develop bilious emesis and abdominal distention as feeding continued over the next several hours. After a barium enema identified the distal obstruction, the pediatric surgical team used rectal irrigation to remove a large meconium plug, which mimicked the appearance of the descending colon on plain film, in a case of small left colon syndrome. Although intestinal obstruction in the newborn is rare, it is imperative that it is promptly diagnosed and treated appropriately to avoid negative outcomes; which, even in perhaps the mildest form of functional distal obstruction, meconium plug syndrome, can lead to an impressive clinical illness with risk of intestinal perforation and subsequent meconium peritonitis if the obstruction is not relieved. (Author)

2023-02971

Association of disrespectful care after childbirth and COVID-19 exposure with postpartum depression symptoms- a longitudinal cohort study in Nepal. Kc A, Acharya A, Bhattarai P, et al (2023), BMC Pregnancy and Childbirth vol 23, no 145, March 2023

Background

The COVID-19 pandemic has led to unprecedented mental stress to women after childbirth. In this study, we assessed the association of disrespectful care after childbirth and COVID-19 exposure before/during labour with postpartum depression symptoms assessed at 7 and 45 days in Nepal.

Methods

A longitudinal cohort study was conducted in 9 hospitals of Nepal among 898 women. The independent data collection system was established in each hospital to collection information on disrespectful care after birth via observation, exposure to COVID-19 infection before/during labour and other socio-demographic via interview. The information on depressive symptoms at 7 and 45 days was collected using the validated Edinburg Postnatal Depression Scale (EPDS) tool. Multi-level regression was performed to assess the association of disrespectful care after birth and COVID-19 exposure with postpartum depression.

Result

In the study, 16.5% were exposed to COVID-19 before/during labour and 41.8% of them received disrespectful care after childbirth. At 7 and 45 days postpartum, 21.3% and 22.4% of women reported depressive symptoms respectively. In the multi-level analysis, at the 7th postpartum day, women who had disrespectful care and no COVID-19 exposure still had 1.78 higher odds of having depressive symptom (aOR, 1.78; 95% CI; 1.16, 2.72). In the multi-level analysis, at 45th postpartum day, women who had disrespectful care and no COVID-19 exposure had 1.37 higher odds of having depressive symptoms (aOR, 1.37; 95% CI; 0.82, 2.30), but not statistically significant.

Conclusion
Disrespectful care after childbirth was strongly associated with postpartum depression symptoms irrespective of COVID-19 exposure during pregnancy. Caregivers, even during the global pandemic, should continue to focus their attention for immediate breast feeding and skin-to-skin contact, as this might reduce the risk for depressive symptoms postpartum. (Author)
Full URL: https://doi.org/10.1186/s12884-023-05457-0

2023-02964

Adopting international recommendations to design a model for maternal health service to cope with pandemic disruption for Indonesian primary care. Ekawati FM, Muchlis M, Tuteja A (2023), BMC Pregnancy and Childbirth vol 23, no 132, March 2023

Background
Limited evidence is available as the reference for the model of care on providing maternity care in low-and-middle-income countries (LMICs) to cope with pandemic disruption. This study aimed to adopt international recommendations to develop the model of care with the context of Indonesian settings.

Methods
Four codesign workshops and substitute interviews with stakeholders, covering the (i) exploration of service provision during the pandemic, (ii) adoption of international recommendations, (iii) designing and (iv) finalising model of care for maternal health services in primary care under the COVID-19 pandemic. The study took place in Yogyakarta Province Indonesia from July-November 2021. The participants were general practitioners, midwives, nurses, patients, and obstetricians. The data were analysed thematically.

Results
Twenty-three participants were recruited. As many as 23, 16, 14 and 16 participants participated in the first to fourth codesign workshops or substitute interviews. Key recommendations agreed upon in the workshop were health screening, maintaining antenatal-postnatal breastfeeding care, limiting visitors, using telemedicine, and creating a multidisciplinary team to provide the care. A model of care for improving maternal service was also agreed and received suggestions from the participants. Identified barriers to the recommendation implementation, such as the available clinical resources and negotiating providers' authority in practice.

Conclusion
Recommendations and the model of care for improving maternity care in Indonesia are beneficial to be implemented in Indonesian primary care during the COVID-19 pandemic. Further research includes pilot studies to explore the acceptability of the model and recommendation implementation in practice. (Author)
Full URL: https://doi.org/10.1186/s12884-023-05433-8

2023-02918

Is it possible to reduce the rate of vertical transmission and improve perinatal outcomes by inclusion of remdesivir in treatment regimen of pregnant women with COVID–19?. Tavakoli N, Chaichian S, Sadraei JS, et al (2023), BMC Pregnancy and Childbirth vol 23, no 110, February 2023

Background

Coronavirus disease 2019 (COVID–19) is currently one of the world's most critical health issues so far. Given the importance of appropriate treatment in pregnancy and the controversies about Remdesivir effectiveness and complications, the present study aimed to evaluate the impact of Remdesivir on maternal, fetal, and perinatal outcomes in pregnant women with COVID–19 diseases.

Methods

A total of 189 pregnant women with positive polymerase chain reaction (PCR) results for SARS–COV–2, and oxygen saturation [SpO2] of < 95%) were admitted to 12 hospitals affiliated with the Iran University of Medical Sciences from March 1st, 2020 to June 7th, 2021, namely the first four COVID-19 Picks in Iran. They were enrolled in this retrospective cohort study by census method and categorized into case and control groups, based on the inclusion of Remdesivir in their treatment protocol. Demographics, clinical outcomes, and pregnancy-related complications of the mothers and the neonates were compared between the two study groups.

Results

A comparison of 54 mothers in the case and 135 in the control group showed no demographic and clinical characteristics difference. Neonates whose mothers did not receive Remdesivir had a higher rate of positive PCR (10.2%), compared to the Remdesivir group (1.9%) with a relative risk of 0.91 reported for Remdesivir (95% CI: 0.85–0.98, P = 0.04); besides, Remdesivir resulted in fewer neonatal intensive care unit admission rates in mild/moderate COVID–19 group (RR = 0.32, 95% CI: 0.105–1.02, P = 0.03). Although neonatal death between the two groups was not statistically significant, from the clinical point seems important; 1(1.9%) in the case vs. 9(7.2%) in the control group. Interestingly LOS (Length of Stay) in the hospital was longer in the case group (median of 7 vs. 3 days; P < 0.0001).

Conclusion

The inclusion of Remdesivir in the treatment protocol of pregnant women with COVID–19 may reduce vertical transmission and improve perinatal outcomes, thus being suggested to be considered. (Author)

Full URL: https://doi.org/10.1186/s12884-023-05405-y

2023-02826

Risk factors for and pregnancy outcomes after SARS-CoV-2 in pregnancy according to disease severity: A nationwide cohort study with validation of the SARS-CoV-2 diagnosis. Aabakke AJM, Petersen TG, Wøjdemann KR, et al (2023), Acta Obstetricia et Gynecologica Scandinavica vol 102, no 3, March 2023, pp 282-293

Introduction

We identified risk factors and outcomes associated with SARS-CoV-2 infection in pregnancy in a universally tested population according to disease severity and validated information on SARS-CoV-2 during pregnancy in national health registers in Denmark.

Material and methods

Cohort study using data from national registers and medical records including all pregnancies between March 1, 2020 and February 28, 2021. We compared women with a validated positive SARS-CoV-2 test during pregnancy with non-infected pregnant women. Risk factors and pregnancy outcomes were assessed by Poisson and Cox regression models and stratified according to disease severity defined by hospital admission status and admission reason (COVID-19 symptoms or other). Using medical record data on actual period of pregnancy, we calculated predictive values of the SARS-CoV-2 diagnosis in pregnancy in the registers.

Results

SARS-CoV-2 infection was detected in 1819 (1.6%) of 111 185 pregnancies. Asthma was associated with infection (relative risk [RR] 1.63, 95% confidence interval [CI] 1.28–2.07). Risk factors for severe COVID-19 disease requiring hospital admission were high body mass index (median ratio 1.06, 95% CI 1.04–1.09), asthma (RR 7.47, 95% CI 3.51–15.90) and gestational age at the time of infection (gestational age 28–36 vs < 22: RR 3.53, 95% CI 1.75–7.10).

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SARS-CoV-2-infected women more frequently had hypertensive disorders in pregnancy (adjusted hazard ratio [aHR] 1.31, 95% CI 1.04–1.64), early pregnancy loss (aHR 1.37, 95% CI 1.00–1.88), preterm delivery before gestational age 28 (aHR 2.31, 95% CI 1.01–5.26), iatrogenically preterm delivery before gestational age 37 (aHR 1.49, 95% CI 1.01–2.19) and small-for-gestational age children (aHR 1.28, 95% CI 1.05–1.54). The associations were stronger among women admitted to hospital for any reason. The validity of the SARS-CoV-2 diagnosis in relation to pregnancy in the registers compared with medical records showed a negative predictive value of 99.9 (95% CI 99.9–100.0) and a positive predictive value of 82.1 (95% CI 80.4–83.7).

Conclusions

Women infected with SARS-CoV-2 during pregnancy were at increased risk of hypertensive disorders in pregnancy, early pregnancy loss, preterm delivery and having children small for gestational age. The validity of Danish national registers was acceptable for identification of SARS-CoV-2 infection during pregnancy. (Author)

Full URL: https://doi.org/10.1111/aogs.14512

2023-02814

Is the risk of still and preterm birth affected by the timing of symptomatic SARS-CoV-2 infection during pregnancy? Data from the COVID-19 Related Obstetrics and Neonatal Outcome Study Network, Germany. Iannaccone A, Mand N, Schmidt B, et al (2023), American Journal of Obstetrics & Gynecology (AJOG) vol 228, no 3, March 2023, pp. 351-352

SARS-CoV-2 infections during pregnancy increases the risk for preterm birth (PTB). This study aimed to analyze the association of the timing of symptomatic SARS-CoV-2 infection during pregnancy with PTB and stillbirth risk. 17.8% of Women with symptomatic infections delivered preterm (double the rate of general German preterm birth rate of 9%). (JM)

2023-02796

Changes in Pregnancy-Associated Deaths in the US During the COVID-19 Pandemic in 2020. Margerison CE, Wang X, Gemmill A, et al (2023), JAMA Network Open vol 6, no 2, February 2023, 2254287

COVID-19 had unique effects on pregnant and postpartum people with maternal deaths from obstetric causes increasing by 33% in 2020 compared to previous years. This study seeks to examine changes in pregnancy-associated mortality from drugs, homicide, suicide, and other causes from 2018 through 2020. It uses a cross-sectional approach and utilises US Death certificates using restricted search criteria's. The study finds an increase in pregnancy-associated drug-related deaths and homicide but a slight decrease in pregnancy-associated suicide deaths in 2020 compared with 2018/2019. The study suggests there is a need for prevention and intervention efforts. (JM)

Full URL: https://doi.org/10.1001/jamanetworkopen.2022.54287

2023-02640

Antibody response, neutralizing potency, and transplacental antibody transfer following SARS-CoV-2 infection versus mRNA-1273, BNT162b2 COVID-19 vaccination in pregnancy. Dude CM, Joseph NT, Forrest AD, et al (2023), International Journal of Gynecology & Obstetrics vol 162, no 1, July 2023, pp 154-162

Objective

To improve our understanding of the immune response, including the neutralization antibody response, following COVID-19 vaccination in pregnancy.

Methods

This was a prospective cohort study comprising patients with PCR-confirmed SARS-CoV-2 infection and patients who received both doses of mRNA COVID-19 vaccine (mRNA-1273, BNT162b2) in pregnancy recruited from two hospitals in Atlanta, GA, USA. Maternal blood and cord blood at delivery were assayed for anti-receptor binding domain (RBD) IgG, IgA and IgM, and neutralizing antibody. The detection of antibodies, titers, and maternal to fetal transfer ratios were compared.

Results

Nearly all patients had detectable RBD-binding IgG in maternal and cord samples. The vaccinated versus infected cohort had a significantly greater proportion of cord samples with detectable neutralizing antibody (94% vs. 28%, P < 0.001) and significantly higher transfer ratios for RBD-specific IgG and neutralizing antibodies with a transfer efficiency of 105% (vs. 80%, P < 0.001) and 110% (vs. 90%, P < 0.001), respectively. There was a significant linear decline in maternal and cord blood RBD-specific IgG and neutralizing antibody titers as time from vaccination to delivery increased.

Conclusions

Those who receive the mRNA COVID-19 vaccine mount an immune response that is equivalent to—if not greater than—those naturally infected by SARS-CoV-2 during pregnancy. (Author)

2023-02605

Systematic review and synthesis of stillbirths and late miscarriages following SARS-CoV-2 infections. Alcover N, Regiroli G, Benachi A, et al (2023), American Journal of Obstetrics & Gynecology (AJOG) vol 229, no 2, August 2023, pp 118-128

Objective

To describe the characteristics of fetal demises following SARS-CoV-2 infections and clarify if they are associated with clinical severity, placental lesions or malformations or due to actual fetal infections.

Data Sources

PubMed and Web of Science databases (searched between December 1, 2019 and April 30, 2022).

Study eligibility criteria

Cohort, cross-sectional and case-control studies, as well as case series or case reports describing stillbirths or late miscarriages (i.e. pregnancy loss occurring between 14 and 22 weeks, before and after the onset of labor, respectively) from mothers infected by SARS-CoV-2 during pregnancy (demonstrated by at least one positive real-time reverse transcription polymerase chain reaction on nasopharyngeal swabs, and/or placental infection with SARS-CoV-2). No language restrictions were applied; cases with other causes possibly explaining the fetal demise were excluded.

Study appraisal and synthesis methods

PRISMA and MOOSE guidelines were followed. Quality of case series/reports was evaluated with the specific Mayo Clinic Evidence-Based Practice Center tool. Maternal and clinical fetal data were collected as well as placental and fetal virology and histology findings. Data were summarized with descriptive statistics using World Health Organization criteria to classify disease severity and fetal-neonatal infections.

Results

Data from 184 mothers and 190 fetuses were analyzed. No clear link with maternal clinical severity or fetal malformation was evident. Approximately 78% of fetal demises occurred during the second and third trimester, ≈6 and 13 days after diagnosis of SARS-CoV-2 infection or the beginning of symptoms, respectively. Most (88%) placentas were positive for SARS-CoV-2 or presented the histological features of placentitis (massive fibrin deposition and chronic intervillositis) previously observed in transplacentally transmitted infections (≈85-91%). Eleven (5.8%) and 114 (60%) fetuses had a confirmed or possible in utero transmitted SARS-CoV-2 infection, respectively.

Conclusions

The synthesis of available data shows that fetal demises generally occur a few days after the infection with histological placental inflammatory lesions associated with transplacental SARS-CoV-2 transmission and eventually causing placental insufficiency. (Author)

2023-02589

Undetected Fetal Growth Restriction During the Coronavirus Disease 2019 (COVID-19) Pandemic. Zafman KB, Cudjoe E, Levine LD, et al (2023), Obstetrics & Gynecology vol 141, no 2, February 2023, pp 414-417

This was a retrospective cohort study of patients who delivered singleton, small-for-gestational-age (SGA) neonates between April and June 2019, before the coronavirus disease 2019 (COVID-19) pandemic (pre–COVID-19), and between April and July 2020, during the pandemic (COVID-19 epoch). The primary outcome was the rate of

undetected antenatal fetal growth restriction (FGR) in the two periods. A total of 268 patients met inclusion criteria. Patients who delivered small-for-gestational-age neonates during the COVID-19 epoch were significantly more likely to have undetected FGR compared with those who delivered pre–COVID-19 (70.1% vs 58.1%, P=.04). Patients who delivered SGA neonates during the COVID-19 epoch had more telehealth visits but fewer in-person prenatal visits, recorded fundal height measurements, and growth ultrasonograms. As telemedicine continues to be incorporated into prenatal care, these data may lend further support toward self-assessment of fundal height or routine third-trimester growth ultrasonograms to identify fetal growth abnormalities. (Author)

2023-02567

Pregnancy, childbirth and postpartum experience in pregnant women infected with SARS-CoV-2 in 2020 in Paris: a qualitative phenomenological study. Cadwallader JS, Berlingo L, Rémy V, et al (2023), BMC Pregnancy and Childbirth vol 23, no 83, January 2023

Background

The COVID-19 pandemic and the resulting lockdowns triggered social discontent on an unprecedented scale. Descriptive phenomenological studies showed that pregnant women were under intense stress during the COVID-19 outbreak, even though they remained uninfected. The purpose of this study was to report on the experiences of pregnant women affected by mild COVID-19 during the first wave of the pandemic.

Methods

In this non- interventional qualitative study, we analyzed pregnant women's experiences using an interpretive phenomenological analysis approach. We conducted semi-structured interviews with women who had had a mild COVID-19 during their pregnancy, and gave birth or planned to give birth in the maternity units of Sorbonne University in Paris, France.

Results

Participants reported that at the time they had COVID-19, they were not afraid of being seriously ill, but of transmitting COVID-19 to their close relatives. Their main concern was being pregnant and becoming a parent in a world where the pandemic deeply altered social environment. This included uncertainty about the future and an acute feeling of isolation related to lockdown. The idea that their partner might not be allowed to attend childbirth was almost unanimously felt as intolerable. In contrast, women had positive feelings regarding the fact that lockdown resulted in a de facto paternity leave leading to a certain degree of equality in the couple regarding baby care and household chores. Unexpectedly, the pandemic social distancing measures helped participants escaping from behavioral constraints, including the unspoken rule that they should welcome greetings from friends and family, despite being exhausted by the recent birth.

Conclusions

Our results suggest that avoiding separation from their partner is a key to benevolent medical care for pregnant women in times of health crises. The unexpected benefits women reported in a world of lockdown cast a new light on their expectation regarding parenthood today. (Author)

Full URL: https://doi.org/10.1186/s12884-023-05406-x

2023-02537

Efforts and expectations of pregnant women against the impact of the COVID-19 pandemic: a phenomenological study. Dewi A, Safaria T, Supriyatiningsih S, et al (2023), BMC Pregnancy and Childbirth vol 23, no 53, January 2023

Background

COVID-19 is a global threat that directly impacts people's mental health and physical well-being. This study explored the efforts and expectations of pregnant women against the impact of the COVID-19 pandemic.

Methods

This study was a qualitative study that used a phenomenological approach. The informants of this study were pregnant women (n = 20). Data analysis used content analysis with software assistance (Nvivo Release 1.5).

Results

The results of this study identified three themes which were: 1) causative factors of pregnant women's anxiety regarding the impact of COVID-19 including lack of knowledge regarding the impact of the COVID-19 virus and perceived susceptibility; 2) Efforts to reduce anxiety during the COVID-19 pandemic including a spiritual approach, the role of family and COVID-19 prevention; and 3) Expectation regarding healthcare services during COVID-19 including virtual based Antenatal Care (ANC) Services and Private ANC Services.

Conclusion

A spiritual approach, the role of family, and COVID-19 prevention will help pregnant women reduce their anxiety about being infected with the COVID-19 virus. Furthermore, virtual-based ANC Services, and private ANC services, such as home visits and dividing ANC services and general services into two different tracks as a protective mechanism from being infected with the COVID-19 virus, would assist pregnant women feel safer and secure. (Author)

Full URL: https://doi.org/10.1186/s12884-023-05383-1

2023-02505

Delivery and neonatal outcomes of pregnant women during the Shanghai lockdown: A retrospective analysis. Zhou F-Y, Li C, Qin K-Z, et al (2023), Frontiers in Pediatrics 2 February 2023, online

Objectives: Shanghai witnessed an unprecedented outbreak of COVID-19 and experienced a strict lockdown from March 28, 2022 to May 31, 2022. Most studies to date are on the first lockdown after the outbreak in December 2019. This study aimed to examine the impact of lockdown on delivery and neonatal outcomes among uninfected pregnant women in the new phase of the COVID-19 outbreak.

Methods: A retrospective analysis was conducted in the Obstetrics and Gynecology Hospital of Fudan University. Pregnant women without COVID-19 who delivered from March 28, 2022 to May 31, 2022 (lockdown group) and the same period in 2021 (non-lockdown group) were recruited for this study. Logistic regression models and 1 : 1 propensity score matching (PSM) were used to assess the effect of lockdown on delivery outcomes.

Results: A total of 2,962 patients were included in this study, 1,339 of whom were from the lockdown group. Compared with the non-lockdown group, pregnant women giving birth during lockdown had an increased risk of term prelabor rupture of membranes (TPROM) (aOR = 1.253, 95% CI: 1.026–1.530), and decreased risks of postpartum hemorrhage (PPH) (aOR = 0.362, 95% CI: 0.216–0.606) and fetal malformation (aOR = 0.309, 95% CI: 0.164–0.582). The risk of large for gestational age (LGA) (aOR = 0.802, 95% CI: 0.648–0.992) and rate of admission to the neonatal intensive care unit (NICU) (aOR = 0.722, 95% CI: 0.589–0.885) also significantly declined. After 1 : 1 PSM, the impact of lockdown on the risk of TPROM (aOR = 1.501, 95% CI: 1.083–2.080), PPH (aOR = 0.371, 95% CI: 0.211–0.654), fetal malformation (aOR = 0.332, 95% CI: 0.161–0.684), LGA (aOR = 0.749, 95% CI: 0.594–0.945) and rate of admission to the NICU (aOR = 0.700, 95% CI: 0.564–0.869) all remained. There were no other delivery or neonatal outcomes affected by the lockdown after the COVID-19 outbreak.

Conclusion: This study indicated a significant increase in the risk of term PROM, significant decreases in the risk of PPH, fetal malformation and LGA, and a marked decline in the rate of admission to the NICU during Shanghai Lockdown. (Author)

Full URL: https://doi.org/10.3389/fped.2023.992908

2023-02406

Comparing maternal substance use and perinatal outcomes before and during the COVID-19 pandemic. Lien J, Hayes T, Liu-Smith F, et al (2023), Journal of Perinatology vol 43, no 5, May 2023, pp 664–669

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Objective
To examine the effect of the COVID-19 pandemic on maternal substance abuse and neonatal outcomes.

Study design
Cross-sectional observational study of neonates admitted to the NICU and born to mothers with evidence of substance abuse pre-pandemic compared to during the COVID-19 pandemic.

Result
We noted a significant increase in fentanyl (12% vs. 0.6%, $p < 0.001$) and tobacco use (64% vs. 33%, $p < 0.001$) during the pandemic compared to pre-pandemic, including an increase in fentanyl use among mothers enrolled in opioid maintenance therapy (OMT) during the pandemic (32.3% vs. 1.5%, $p < 0.001$). There was a significant increase in preterm births (58% vs. 48%, $p = 0.022$) and lower birth weight (2315 ± 815 vs. 2455 ± 861 g, $p = 0.049$) during pandemic.

Conclusion
There was a significant increase in maternal fentanyl use during the pandemic, even with OMT enrollment, with an increase in preterm births and lower birth weights among infants born to mothers with substance use. (Author)

2023-02321

Food insecurity and its socioeconomic and health determinants in pregnant women and mothers of children under 2 years of age, during the COVID-19 pandemic: A systematic review and meta-analysis. Azevedo FM, de Morais NS, Silva DLF, et al (2023), Frontiers in Public Health 24 January 2023, online

Background: The COVID-19 pandemic has reduced access to adequate food in terms of quality and quantity, especially for the most vulnerable population groups. The objective of this study was to evaluate the prevalence of Food Insecurity and its main socioeconomic and health determinants in pregnant women and mothers of children under 2 years of age, during the COVID-19 pandemic.

Methods: This systematic review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) and registered in the International Prospective Register of Systematic Reviews (PROSPERO) (CRD42021278033). The descriptors “Pregnant Woman”, “Postpartum Women”, “Breastfeeding Women”, “COVID-19”, “Food Insecurity”, “Food Security” were combined in Scopus (Elsevier), Medline/PubMed (via National Library of Medicine), Embase (Elsevier), Web of Science and Science Direct independently by two researchers in September 2022. Original articles about Food Insecurity in households with pregnant women and mothers of children under 2 years of age during the COVID-19 pandemic were included. The meta-analysis of the prevalence of Food Insecurity was conducted using the RStudio software (4.0.4).

Results: The initial search resulted in 539 records, and 10 articles met the proposed criteria and were included in this review. The prevalence of Food Insecurity ranged from 11.5 to 80.3% and in the meta-analysis it was 51% (IC: 30–71) ($I2 = 100.0\%$). The main socioeconomic and health determinants were ethnicity, domain language, low education, low income, informal employment, unemployment, occurrence of mental disorders, domestic violence, in addition to the unavailability of food in markets and lack of transport. The inclusion of studies with data collection by telephone stands out as a limitation, due to the non-inclusion of vulnerable groups without access to this means of communication.

Conclusion: It is necessary to implement and strengthen specific public policies for the maternal and child group with the objective of protecting and strengthening the rights of women to maintain the physical and mental integrity of this group and guarantee Food Security. (Author)

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2023-02319

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Cell-type specific distribution and activation of type I IFN pathway molecules at the placental maternal-fetal interface in response to COVID-19 infection. Wang Y, Gu Y, Lewis DF, et al (2023), Frontiers in Endocrinology 20 January 2023, online

Background and objective: COVID-19 infection in pregnancy significantly increases risks of adverse pregnancy outcomes. However, little is known how the innate immunity at the placental maternal-fetal interface responds to COVID-19 infection. Type I IFN cytokines are recognized as a key component of the innate immune response against viral infection. In this study, we specifically evaluated expression of IFN antiviral signaling molecules in placentas from women infected with COVID-19 during pregnancy.

Methods: Expression of IFN activation signaling pathway molecules, including cyclic GMP–AMP synthase (cGAS), stimulator of interferon genes (STING), interferon regulatory factor 3 (IRF3), Toll-like receptor 7 (TLR7), mitochondrial antiviral-signaling protein (MAVS), and IFNβ were determined in formalin-fixed paraffin embedded (FFPE) placental tissue sections (villous and fetal membrane) by immunostaining. A total of 20 placentas were examined, 12 from COVID-19 patients and 8 from non-COVID-19 controls. Patient demographics, clinical data, and placental pathology report were acquired via EPIC medical record review.

Results: Except BMI and placental weight, there was no statistical difference between COVID and non-COVID groups in maternal age, gestational age at delivery, gravity/parity, delivery mode, and newborn gender and weight. In COVID-exposed group, the main pathological characteristics in the placental disc are maternal and fetal vascular malperfusion and chronic inflammation. Compared to non-COVID controls, expression of IFN activation pathway molecules were all upregulated with distinct cell-type specific distribution in COVID-exposed placentas: STING in villous and decidual stromal cells; IRF3 in cytotrophoblasts (CTs) and extra-villous trophoblasts (EVTs); and TLR7 and MAVS in syncytiotrophoblasts (STs), CTs, and EVTs. Upregulation of STING, MAVS and TLR7 was also seen in fetal endothelial cells.

Conclusions: STING, IRF3, TLR7, and MAVS are key viral sensing molecules that regulate type I IFN production. Type I IFNs are potent antiviral cytokines to impair and eradicate viral replication in infected cells. The finding of cell-type specific distribution and activation of these innate antiviral molecules at the placental maternal-fetal interface provide plausible evidence that type I IFN pathway molecules may play critical roles against SARS-CoV-2 infection in the placenta. Our findings also suggest that placental maternal-fetal interface has a well-defined antiviral defense system to protect the developing fetus from SARS-CoV-2 infection. (Author)

Full URL: https://doi.org/10.3389/fendo.2022.951388

2023-02266

Comparison of adverse pregnancy and birth outcomes using archival medical records before and during the first wave of the COVID-19 pandemic in Kinshasa, Democratic Republic of Congo: a facility-based, retrospective cohort study. Arena PJ, Dzogang C, Gadoth A, et al (2023), BMC Pregnancy and Childbirth vol 23, no 31, January 2023

Background

Little research has been conducted on the impact of the coronavirus disease 2019 (COVID-19) pandemic on either birth outcomes or the ability of archival medical records to accurately capture these outcomes. Our study objective is thus to compare the prevalence of preterm birth, stillbirth, low birth weight (LBW), small for gestational age (SGA), congenital microcephaly, and neonatal bloodstream infection (NBSI) before and during the first wave of the COVID-19 pandemic in Kinshasa, Democratic Republic of Congo (DRC).

Methods

We conducted a facility-based retrospective cohort study in which identified cases of birth outcomes were tabulated at initial screening and subcategorized according to level of diagnostic certainty using Global Alignment of Immunization Safety Assessment in pregnancy (GAIA) definitions. Documentation of any birth complications, delivery type, and maternal vaccination history were also evaluated. The prevalence of each birth outcome was compared in the pre-COVID-19 (i.e., July 2019 to February 2020) and intra-COVID-19 (i.e., March to August 2020) periods via two-sample z-test for equality of proportions.

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Results

In total, 14,300 birth records were abstracted. Adverse birth outcomes were identified among 22.0% and 14.3% of pregnancies in the pre-COVID-19 and intra-COVID-19 periods, respectively. For stillbirth, LBW, SGA, microcephaly, and NBSI, prevalence estimates were similar across study periods. However, the prevalence of preterm birth in the intra-COVID-19 period was significantly lower than that reported during the pre-COVID-19 period (8.6% vs. 11.5%, $p < 0.0001$). Furthermore, the level of diagnostic certainty declined slightly across all outcomes investigated from the pre-COVID-19 to the intra-COVID-19 period. Nonetheless, diagnostic certainty was especially low for certain outcomes (i.e., stillbirth and NBSI) regardless of period; still, other outcomes, such as preterm birth and LBW, had moderate to high levels of diagnostic certainty. Results were mostly consistent when the analysis was focused on the facilities designated for COVID-19 care.

Conclusion

This study succeeded in providing prevalence estimates for key adverse birth outcomes using GAIA criteria during the COVID-19 pandemic in Kinshasa, DRC. Furthermore, our study adds crucial real-world data to the literature surrounding the impact of the COVID-19 pandemic on maternal and neonatal services and outcomes in Africa. (Author)

Full URL: https://doi.org/10.1186/s12884-022-05291-w

2023-02261

Tracking excess of maternal deaths associated with COVID-19 in Brazil: a nationwide analysis. Guimarães RM, Reis LGC, de Souza Mendes Gomes MA, et al (2023), BMC Pregnancy and Childbirth vol 23, no 22, January 2023

Background

The COVID-19 pandemic brought a new challenge to maternal mortality in Brazil. Throughout 2020, Brazil registered 549 maternal deaths, mainly in second and third-trimester pregnant women. The objective of this study was to estimate the excess maternal deaths in Brazil caused directly and indirectly by Covid-19 in the year 2020. In addition, we sought to identify clinical, social and health care factors associated with the direct maternal deaths caused by Covid-19.

Methods

We performed nationwide analyses based on data from the Mortality Information System (SIM) for general and maternal deaths and the Influenza Epidemiological Surveillance System (SIVEP-Influenza) for estimates of female and maternal deaths due to COVID-19. Two distinct techniques were adopted. First, we describe maternal deaths directly caused by covid-19 and compare them with the historical series of deaths from covid-19 among women of childbearing age (15 to 49 years). Next, we estimated the total excess maternal mortality. Then, we calculated odds ratios for symptoms, comorbidities, social determination proxies and hospital care aspects between COVID-19 maternal deaths and deaths of women of childbearing age who were not pregnant or no maternal deaths. We chose women of childbearing age (15 to 49 years) as a reference because sex and age introduce differentials in the risk of COVID-19 death.

Results

Most maternal deaths occurred during pregnancy compared to postpartum deaths month by month in 2020 ($\mu = 59.8\%$, $SD = 14.3\%$). The excess maternal mortality in 2020 in Brazil was 1.40 (95% CI 1.35–1.46). Even considering excess mortality due to COVID-19 for the childbearing age female population (MMR 1.14; 95% CI 1.13–1.15), maternal mortality exceeded the expected number. The odds of being a black woman, living in a rural area and being hospitalized outside the residence municipality among maternal deaths were 44, 61 and 28% higher than the control group. Odds of hospitalization (OR 4.37; 95% CI 3.39–5.37), ICU admission (OR 1.73; 95% CI 1.50–1.98) and invasive ventilatory support use (OR 1.64; CI 95% 1.42–1.86) among maternal deaths were higher than in the control group.

Conclusions

There was excess maternal mortality in 2020 in Brazil. Even with adjustment for the expected excess mortality from Covid-19 in women of childbearing age, the number of maternal deaths exceeds expectations, suggesting that there were deaths among pregnant and postpartum women indirectly caused by the pandemic, compromising access to prenatal care., adequate childbirth and puerperium. (Author)

Full URL: https://doi.org/10.1186/s12884-022-05338-y

2023-02258

Mechanical ventilation and death in pregnant patients admitted for COVID-19: a prognostic analysis from the Brazilian COVID-19 registry score. Reis ZSN, Pires MC, Ramos LEF, et al (2023), BMC Pregnancy and Childbirth vol 23, no 18, January 2023

Background

The assessment of clinical prognosis of pregnant COVID-19 patients at hospital presentation is challenging, due to physiological adaptations during pregnancy. Our aim was to assess the performance of the ABC2-SPH score to predict in-hospital mortality and mechanical ventilation support in pregnant patients with COVID-19, to assess the frequency of adverse pregnancy outcomes, and characteristics of pregnant women who died.

Methods

This multicenter cohort included consecutive pregnant patients with COVID-19 admitted to the participating hospitals, from April/2020 to March/2022. Primary outcomes were in-hospital mortality and the composite outcome of mechanical ventilation support and in-hospital mortality. Secondary endpoints were pregnancy outcomes. The overall discrimination of the model was presented as the area under the receiver operating characteristic curve (AUROC). Overall performance was assessed using the Brier score.

Results

From 350 pregnant patients (median age 30 [interquartile range (25.2, 35.0)] years-old]), 11.1% had hypertensive disorders, 19.7% required mechanical ventilation support and 6.0% died. The AUROC for in-hospital mortality and for the composite outcome were 0.809 (95% IC: 0.641–0.944) and 0.704 (95% IC: 0.617–0.792), respectively, with good overall performance (Brier = 0.0384 and 0.1610, respectively). Calibration was good for the prediction of in-hospital mortality, but poor for the composite outcome. Women who died had a median age 4 years-old higher, higher frequency of hypertensive disorders (38.1% vs. 9.4%, $p < 0.001$) and obesity (28.6% vs. 10.6%, $p = 0.025$) than those who were discharged alive, and their newborns had lower birth weight (2000 vs. 2813, $p = 0.001$) and five-minute Apgar score (3.0 vs. 8.0, $p < 0.001$).

Conclusions

The ABC2-SPH score had good overall performance for in-hospital mortality and the composite outcome mechanical ventilation and in-hospital mortality. Calibration was good for the prediction of in-hospital mortality, but it was poor for the composite outcome. Therefore, the score may be useful to predict in-hospital mortality in pregnant patients with COVID-19, in addition to clinical judgment. Newborns from women who died had lower birth weight and Apgar score than those who were discharged alive. (Author)

Full URL: https://doi.org/10.1186/s12884-022-05310-w

2023-02137

Maternal mRNA covid-19 vaccination during pregnancy and delta or omicron infection or hospital admission in infants: test negative design study. Jorgensen SCJ, Hernandez A, Fell DB, et al (2023), British Medical Journal vol 380, no 8370, February 2023, e074035

Objective To estimate the effectiveness of maternal mRNA covid-19 vaccination during pregnancy against delta and omicron severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) infection and hospital admission in infants.

Design Test negative design study.

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Setting Community and hospital testing in Ontario, Canada.

Participants Infants younger than six months of age, born between 7 May 2021 and 31 March 2022, who were tested for SARS-CoV-2 between 7 May 2021 and 5 September 2022.

Intervention Maternal mRNA covid-19 vaccination during pregnancy.

Main outcome measures Laboratory confirmed delta or omicron infection or hospital admission of the infant. Multivariable logistic regression estimated vaccine effectiveness, with adjustments for clinical and sociodemographic characteristics associated with vaccination and infection.

Results 8809 infants met eligibility criteria, including 99 delta cases (4365 controls) and 1501 omicron cases (4847 controls). Infant vaccine effectiveness from two maternal doses was 95% (95% confidence interval 88% to 98%) against delta infection and 97% (73% to 100%) against infant hospital admission due to delta and 45% (37% to 53%) against omicron infection and 53% (39% to 64%) against hospital admission due to omicron. Vaccine effectiveness for three doses was 73% (61% to 80%) against omicron infection and 80% (64% to 89%) against hospital admission due to omicron. Vaccine effectiveness for two doses against infant omicron infection was highest with the second dose in the third trimester (53% (42% to 62%)) compared with the first (47% (31% to 59%)) or second (37% (24% to 47%)) trimesters. Vaccine effectiveness for two doses against infant omicron infection decreased from 57% (44% to 66%) between birth and eight weeks to 40% (21% to 54%) after 16 weeks of age.

Conclusions Maternal covid-19 vaccination with a second dose during pregnancy was highly effective against delta and moderately effective against omicron infection and hospital admission in infants during the first six months of life. A third vaccine dose bolstered protection against omicron. Effectiveness for two doses was highest with maternal vaccination in the third trimester, and effectiveness decreased in infants beyond eight weeks of age. (Author)
Full URL: https://doi.org/10.1136/bmj-2022-074035

2023-02073

Losing Connection: Experiences of Virtual Pregnancy and Postpartum Care During the COVID-19 Pandemic. Altman MR, Mohammed SA, Eagen-Torkko MK, et al (2023), The Journal of Perinatal and Neonatal Nursing vol 37, no 1, January 2023, pp 44-49
Introduction:
The rapid uptake of telehealth for perinatal care during the coronavirus disease-2019 (COVID-19) pandemic has led to mixed evidence as to its effectiveness, with limited research demonstrating satisfaction and appropriateness for communities at risk for poor birth outcomes. The purpose of this article is to describe the experiences of virtual care during pregnancy and postpartum among a diverse group of pregnant/birthing people in Washington State during the COVID-19 pandemic.

Methods:
We conducted a thematic analysis study exploring experiences of care during the COVID-19 pandemic for 15 pregnant and birthing people in Washington State. This secondary analysis utilized data specific to experiences receiving care via telehealth.

Results:
Three dominant themes were identified: loss of connection and relationships with providers; need for hands-on interactions for reassurance; and virtual care is good for some things but not all—desire for immediate, accessible care when appropriate. The majority of participants felt that it was subpar to in-person care due to a lack of connection and the inability to receive necessary tests and hands-on reassurance.

Discussion/Conclusions:

Our study findings encourage very judicious use of virtual care for communities that are at high risk for birth disparities to avoid impacting relationship building between patient and provider. (Author)

2023-01964

Pregnancy during the pandemic: The psychological impact of COVID-19 on pregnant women in Greece. Diamanti A, Sarantaki A, Kalamata N, et al (2023), European Journal of Midwifery vol 7, January 2023, p 2

Introduction:
The COVID-19 outbreak has affected the overall health of people worldwide. Historically, pandemics pose a challenge to psychological resilience, causing heightened stress levels. This study aimed to investigate the impact of the COVID-19 pandemic on the psychological state of pregnant women in Greece.

Methods:
A survey study was conducted on a sample of 149 pregnant women in late 2020, including the 'fear of COVID-19' scale, a self-report instrument that assess fear of COVID-19 among the general population and the State-Trait Anxiety Inventory (STAI) scale which measures state and trait anxiety

Results:
Pregnant women with a mental health history tended to score higher on the 'fear of COVID-19' scale (mean ± SD: 19.48 ± 4.35) compared to pregnant women who had never had mental health problems before (17.12 ± 5.27). Moreover, pregnant women with anxiety as part of their personality tended to also score higher on the 'fear of COVID-19' scale. In all, 48.3% of pregnant women reported that their psychological state had been severely affected by the COVID-19 outbreak.

Conclusions:
Pregnant women were highly affected by the COVID-19 pandemic. A significantly increased 'fear of COVID-19' scale score was associated with self-reported pre-existence mental health conditions. Pregnant women with higher levels of 'trait anxiety' tended to report higher scores on the 'fear of COVID-19' scale. (Author)
Full URL: https://doi.org/10.18332/ejm/157463

2023-01910

Impact of asymptomatic and mild COVID-19 infection on fetal growth during pregnancy. Narang K, Miller M, Trinidad C, et al (2023), European Journal of Obstetrics & Gynecology and Reproductive Biology vol 281, February 2023, pp 63-67

Background
During pregnancy, certain viral infections are known to significantly affect fetal development. Data regarding the impact of COVID-19 viral infection in pregnancy, specifically in asymptomatic or mild cases, remains limited. This presents a challenge in providing prenatal counseling and antepartum surveillance in pregnancies complicated by COVID-19 infection. Placenta studies have demonstrated that vascular malperfusion patterns attributed to COVID-19 appear to depend on the timing of infection. Given these placental changes, we aim to evaluate the impact of COVID-19 on fetal growth in pregnant patients with asymptomatic or mild disease, stratified by trimester of infection. We hypothesize that COVID-19 infection, especially early in pregnancy, increases the risk of fetal growth restriction (FGR).
Study design.
This is a single institution, retrospective cohort study of patients ages 16–55 years old with a singleton delivery between December 10, 2020, and April 19, 2021 who had not received a COVID-19 vaccination prior to delivery. COVID-19 infection during pregnancy was defined as a positive SARS-CoV-2 RT-PCR test. FGR was defined as an estimated fetal weight less than the 10th percentile for gestational age or abdominal circumference less than the 10th percentile for gestational age. Maternal and fetal characteristics, including FGR, were compared between women with versus without COVID-19 infection during pregnancy.
Results

Among 1971 women with a singleton delivery, 208 (10.6 %) had a prior asymptomatic or mild COVID-19 infection during pregnancy. With the exception in the median prenatal BMI being significantly higher in the COVID-19 group (median, 27.5 vs 26.3, p = 0.04), there were no significant differences in demographics, baseline maternal comorbidities or gestational age between those with versus without COVID-19 infection during pregnancy, or in the proportion of their offspring with FGR (3.4 % (7/208) vs 4.8 % (84/1763), p = 0.36). When the 208 women were stratified by the timing of their COVID-19 infection, the proportion with an offspring with FGR was 8.7 % (2/23), 1.2 % (1/84), and 4.0 % (4/101), for those first diagnosed with COVID-19 during the 1st, 2nd, and 3rd trimesters, respectively (p = 0.72 Cochran-Armitage test for trend).

Conclusion

Asymptomatic or mild COVID-19 infection in pregnancy, regardless of timing of infection, does not appear to be associated with FGR. Routine serial fetal growth assessment may not be warranted solely for history of COVID-19 infection. (Author)

Full URL: https://doi.org/10.1016/j.ejogrb.2022.12.020

2023-01904

Pregnancy in the time of COVID-19: towards Fetal monitoring 4.0. Kahankova R, Barnova K, Jaros R, et al (2023), BMC Pregnancy and Childbirth vol 23, no 33, January 2023

On the outbreak of the global COVID-19 pandemic, high-risk and vulnerable groups in the population were at particular risk of severe disease progression. Pregnant women were one of these groups. The infectious disease endangered not only the physical health of pregnant women, but also their mental well-being. Improving the mental health of pregnant women and reducing their risk of an infectious disease could be achieved by using remote home monitoring solutions. These would allow the health of the mother and fetus to be monitored from the comfort of their home, a reduction in the number of physical visits to the doctor and thereby eliminate the need for the mother to venture into high-risk public places. The most commonly used technique in clinical practice, cardiotocography, suffers from low specificity and requires skilled personnel for the examination. For that and due to the intermittent and active nature of its measurements, it is inappropriate for continuous home monitoring. The pandemic has demonstrated that the future lies in accurate remote monitoring and it is therefore vital to search for an option for fetal monitoring based on state-of-the-art technology that would provide a safe, accurate, and reliable information regarding fetal and maternal health state. In this paper, we thus provide a technical and critical review of the latest literature and on this topic to provide the readers the insights to the applications and future directions in fetal monitoring. We extensively discuss the remaining challenges and obstacles in future research and in developing the fetal monitoring in the new era of Fetal monitoring 4.0, based on the pillars of Healthcare 4.0. (Author)

Full URL: https://doi.org/10.1186/s12884-023-05349-3

2023-01747

Influence of the COVID-19 pandemic on self-reported urinary incontinence during pregnancy and postpartum: A prospective study. Ferrari A, Corazza I, Mannella P, et al (2023), International Journal of Gynecology & Obstetrics vol 160, suppl 1, January 2023, pp 187-194

Objective

To explore how the COVID-19 pandemic influenced self-reported occurrence and severity of pregnancy-related urinary incontinence (UI) in the maternity pathways of Tuscany, Italy.

Methods

In this prospective pre-post cohort study, we selected a pre-pandemic (n = 1018) and a post-pandemic (n = 3911) cohorts of women that completed, from the first trimester until 3 months postpartum, three surveys including validated patient-reported outcome measures for UI. Data were obtained from systematic surveys on the maternity pathways of Tuscany from March 2019 to June 2021. We performed panel regression models to explore how UI risk differed between COVID-19 groups.

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Results
UI occurred less frequently and less severely in post-pandemic patients—especially stress/mixed UI in women never performing pelvic floor muscle training (PFMT)—whereas no difference emerged in women performing during-pregnancy PFMT. During COVID-19, obese women had higher risk of UI, whereas women undergoing operative delivery had lower risk. The post-pandemic group reported more severe UI symptoms at the third trimester, but less severe UI postpartum in women suffering from UI during pregnancy.

Conclusions
During the COVID-19 pandemic, women reported fewer UI symptoms because they might have lacked chances to identify UI symptoms as a result of pandemic-related sedentarism and inactivity. The risk in women performing during-pregnancy PFMT was not increased, but just six of 26 health districts organized remote PFMT sessions, thus revealing limited resilience to the pandemic in Tuscany. (Author)
Full URL: https://doi.org/10.1002/ijgo.14522

2023-01643

Neuromotor repertoires in infants exposed to maternal COVID-19 during pregnancy: a cohort study. Martinez VF, Zhang D, Paiola S, et al (2023), BMJ Open vol 13, no 1, January 2023, 069194

Objective To evaluate neuromotor repertoires and developmental milestones in infants exposed to antenatal COVID-19.

Design Longitudinal cohort study.

Setting Hospital-based study in Los Angeles, USA and Rio de Janeiro, Brazil between March 2020 and December 2021.

Participants Infants born to mothers with COVID-19 during pregnancy and prepandemic control infants from the Graz University Database.

Interventions General movement assessment (GMA) videos between 3 and 5 months post-term age were collected and clinical assessments/developmental milestones evaluated at 6–8 months of age. Cases were matched by gestational age, gender and post-term age to prepandemic neurotypical unexposed controls from the database.

Main outcome measures Motor Optimality Scores Revised (MOS-R) at 3–5 months. Presence of developmental delay (DD) at 6–8 months.

Results 239 infants were enrolled; 124 cases (83 in the USA/41 in Brazil) and 115 controls. GMA was assessed in 115 cases and 115 controls; 25% were preterm. Median MOS-R in cases was 23 (IQR 21–24, range 9–28) vs 25 (IQR 24–26, range 20–28) in controls, p<0.001. Sixteen infants (14%) had MOS-R scores <20 vs zero controls, p<0.001. At 6–8 months, 13 of 109 case infants (12%) failed to attain developmental milestones; all 115 control infants had normal development. The timing of maternal infection in pregnancy (first, second or third trimester) or COVID-19 disease severity (NIH categories asymptomatic, mild/moderate or severe/critical) was not associated with suboptimal MOS-R or DD. Maternal fever in pregnancy was associated with DD (OR 3.7; 95% CI 1.12 to 12.60) but not suboptimal MOS-R (OR 0.25; 95% CI 0.04 to 0.96).

Conclusions Compared with prepandemic controls, infants exposed to antenatal COVID-19 more frequently had suboptimal neuromotor development. (Author)
Full URL: http://dx.doi.org/10.1136/bmjopen-2022-069194

2023-01554

The perinatal health challenges of emerging and re-emerging infectious diseases: A narrative review. Malange VNE,

Hedermann G, Lausten-Thomsen U, et al (2023), 5 January 2023, online

The world has seen numerous infectious disease outbreaks in the past decade. In many cases these outbreaks have had considerable perinatal health consequences including increased risk of preterm delivery (e.g., influenza, measles, and COVID-19), and the delivery of low birth weight or small for gestational age babies (e.g., influenza, COVID-19). Furthermore, severe perinatal outcomes including perinatal and infant death are a known consequence of multiple infectious diseases (e.g., Ebola virus disease, Zika virus disease, pertussis, and measles). In addition to vaccination during pregnancy (where possible), pregnant women, are provided some level of protection from the adverse effects of infection through community-level application of evidence-based transmission-control methods. This review demonstrates that it takes almost 2 years for the perinatal impacts of an infectious disease outbreak to be reported. However, many infectious disease outbreaks between 2010 and 2020 have no associated pregnancy data reported in the scientific literature, or pregnancy data is reported in the form of case-studies only. This lack of systematic data collection and reporting has a negative impact on our understanding of these diseases and the implications they may have for pregnant women and their unborn infants. Monitoring perinatal health is an essential aspect of national and global healthcare strategies as perinatal life has a critical impact on early life mortality as well as possible effects on later life health. The unpredictable nature of emerging infections and the potential for adverse perinatal outcomes necessitate that we thoroughly assess pregnancy and perinatal health implications of disease outbreaks and their public health interventions in tandem with outbreak response efforts. Disease surveillance programs should incorporate perinatal health monitoring and health systems around the world should endeavor to continuously collect perinatal health data in order to quickly update pregnancy care protocols as needed. (Author)

Full URL: https://doi.org/10.3389/fpubh.2022.1039779

2023-01468

Single-center serological surveillance of SARS-CoV-2 in pregnant patients presenting to labor and delivery. Boggess KA, Stringer EM, Robinson WR, et al (2023), International Journal of Gynecology & Obstetrics vol 160, no 3, March 2023, pp 874-879

Objective

To measure maternal/fetal SARS-CoV-2 antibody levels.

Methods

A prospective observational study of eligible parturients admitted to the hospital for infant delivery was conducted between April and September 2020. SARS-CoV-2 antibody levels were measured in maternal and umbilical cord specimens using an in-house ELISA based on the receptor-binding domain (RBD) of the spike protein. Among SARS-CoV-2 seropositive patients, spike RBD antibody isotypes (IgG, IgM, and IgA) and ACE2 inhibiting antibodies were measured.

Results

In total, 402 mothers were enrolled and spike RBD antibodies in 388 pregnancies were measured (336 maternal and 52 cord specimens). Of them, 19 were positive (15 maternal, 4 cord) resulting in a seroprevalence estimate of 4.8% (95% confidence interval 2.9–7.4). Of the 15 positive maternal specimens, all had cord blood tested. Of the 15 paired specimens, 14 (93.3%) were concordant. Four of the 15 pairs were from symptomatic mothers, and all four showed high spike-ACE2 blocking antibody levels, compared to only 3 of 11 (27.3%) from asymptomatic mothers.

Conclusion

A variable antibody response to SARS-CoV-2 in pregnancy among asymptomatic infections compared to symptomatic infections was found, the significance of which is unknown. Although transfer of transplacental neutralizing antibodies occurred, additional research is needed to determine how long maternal antibodies can protect the infant against SARS-CoV-2 infection. (Author)

2023-01448

Quality of prenatal and postpartum telehealth visits during COVID-19 and preferences for future care. Marshall C,

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Gutierrez S, Hecht H, et al (2023), AJOG Global Reports vol 3, no 1, February 2023, 100139

BACKGROUND

At the start of the COVID-19 pandemic, telehealth practices for pregnancy-related care were rapidly implemented. Telehealth for pregnancy-related care is likely to continue after the pandemic. In order for health systems and clinicians to provide person-centered pregnancy-related care via telehealth, it is critical to understand patients' telehealth experiences and their preferences regarding the use of telehealth moving forward.

OBJECTIVE

This study aimed to describe perceived quality of prenatal and postpartum telehealth visits during COVID-19 and to examine the association between telehealth quality during the pandemic and future telehealth preferences.

STUDY DESIGN

We used data from of an online sample of US women aged 18 to 45 years seeking reproductive health care during COVID-19. Two cross-sections of survey data were collected in July 2020 and January 2021. This analysis included those who sought prenatal (n=1496) or postpartum (n=482) care during the pandemic. Among those who had a prenatal or postpartum telehealth visit, we used multivariable logistic regression to examine the association between a measure of perceived telehealth quality and openness to future telehealth visits, adjusting for sociodemographic characteristics.

RESULTS

A total of 57.5% of prenatal and 52.9% of postpartum respondents had a telehealth appointment. Respondents agreed with most statements about the quality of their telehealth appointments, with ≥80% reporting that they were convenient, easy, safe, and provided good information. Lower-ranked quality items were related to visits feeling personal and the patient feeling cared for. A total of 35.2% of prenatal (n=816) and 43.3% of postpartum (n=231) respondents expressed openness to telehealth visits in the future. Prenatal and postpartum respondents reporting higher telehealth quality had increased odds of being open to telehealth in the future (prenatal: adjusted odds ratio, 1.2; 95% confidence interval, 1.2–1.3; postpartum: adjusted odds ratio, 1.2; 95% confidence interval, 1.1–1.3).

CONCLUSION

Prenatal and postpartum respondents with better telehealth experiences were more likely to express openness to telehealth in the future, although most preferred future in-person visits. As pregnancy-related telehealth continues, it is important to offer appointment options that match patient preferences, especially populations that face barriers in access to care, and to explore ways to personalize care and support positive patient–provider relationships. (Author)

Full URL: https://doi.org/10.1016/j.xagr.2022.100139

2023-01288

COVID-19 antibody positivity over time and pregnancy outcomes in seven low-and-middle-income countries: A prospective, observational study of the Global Network for Women's and Children's Health Research. Goldenberg RL, Saleem S, Billah SM, et al (2023), BJOG: An International Journal of Obstetrics and Gynaecology vol 130, no 4, March 2023, pp 366-376

Objectives

To determine COVID-19 antibody positivity rates over time and relationships to pregnancy outcomes in low- and middle-income countries (LMICs).

Design

With COVID-19 antibody positivity at delivery as the exposure, we performed a prospective, observational cohort study in seven LMICs during the early COVID-19 pandemic.

Setting

The study was conducted among women in the Global Network for Women's and Children's Health's Maternal and Newborn Health Registry (MNHR), a prospective, population-based study in Kenya, Zambia, the Democratic Republic of the Congo (DRC), Bangladesh, Pakistan, India (two sites), and Guatemala.

Population
Pregnant women enrolled in an ongoing pregnancy registry at study sites.

Methods
From October 2020 to October 2021, standardised COVID-19 antibody testing was performed at delivery among women enrolled in MNHR. Trained staff masked to COVID-19 status obtained pregnancy outcomes, which were then compared with COVID-19 antibody results.

Main Outcome Measures
Antibody status, stillbirth, neonatal mortality, maternal mortality and morbidity.

Results
At delivery, 26.0% of women were COVID-19 antibody positive. Positivity increased over the four time periods across all sites: 13.8%, 15.4%, 21.0% and 40.9%. In the final period, positivity rates were: DRC 27.0%, Kenya 33.1%, Pakistan 32.8%, Guatemala 37.0%, Zambia 37.8%, Bangladesh 47.2%, Nagpur, India 57.4% and Belagavi, India 62.4%. Adjusting for site and maternal characteristics, stillbirth, neonatal mortality, low birthweight and preterm birth were not significantly associated with COVID-19. The adjusted relative risk (aRR) for stillbirth was 1.27 (95% CI 0.95–1.69). Postpartum haemorrhage was associated with antibody positivity (aRR 1.44; 95% CI 1.01–2.07).

Conclusions
In pregnant populations in LMICs, COVID-19 antibody positivity has increased. However, most adverse pregnancy outcomes were not significantly associated with antibody positivity. (Author)
Full URL: https://doi.org/10.1111/1471-0528.17366

2023-01146
Coronavirus Disease 2019 (COVID-19) Perinatal Outcomes Across the Pandemic at an Academic Medical Center in New York City. Seaton CL, Cohen A, Henninger EM, et al (2023), Obstetrics & Gynecology vol 141, no 1, pp 144-151, January 2023
OBJECTIVE:
To investigate perinatal complications associated with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection during pregnancy in the four major waves of the coronavirus disease 2019 (COVID-19) pandemic in the Bronx, New York.

METHODS:
This retrospective cohort study included all patients who delivered at a single academic medical center between March 1, 2020, and February 13, 2022. SARS-CoV-2 positivity was defined as a positive SARS-CoV-2 test result during pregnancy. Primary outcomes were preterm birth, low birth weight, stillbirth, cesarean delivery, and preeclampsia associated with SARS-CoV-2 infection. Secondary analyses examined outcomes by predominant variant at the time of infection. Group differences in categorical variables were tested using $\chi 2$ tests.

RESULTS:
Of the 8,983 patients who delivered, 638 (7.1%) tested positive for SARS-CoV-2 infection during pregnancy. Age, race, ethnicity, and major comorbidities did not differ significantly between the SARS-CoV-2–positive and SARS-CoV-2–negative cohorts (P>.05). Primary outcomes did not differ between the SARS-CoV-2–positive and SARS-CoV-2–negative cohorts (P>.05). There was a marked increase in positive SARS-CoV-2 test results in individuals who gave birth during the Omicron wave (140/449, 31.2%). However, among patients who tested positive for SARS-CoV-2 infection, the preterm birth rate during the Omicron wave (9.9%) was significantly lower than during the

original wave (20.3%) and the Alpha (18.4%) wave (P<.05). Vaccination rates were low before the Omicron wave and rose to 47.2% during the Omicron wave among individuals hospitalized with SARS-CoV-2 infection. Finally, second-trimester infection was significantly associated with worse perinatal outcomes compared with third-trimester infection (P<.05).

CONCLUSION:
There was a general trend toward improvement in preterm birth rates across the pandemic among pregnant patients with SARS-CoV-2 infection. The Omicron variant was more infectious, but the preterm birth rate during the Omicron wave was low compared with that during the original wave and the Alpha wave. (Author)
Full URL: https://journals.lww.com/greenjournal/Fulltext/2023/01000/Coronavirus_Disease_2019__COVID_19__Perinatal.15.aspx

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2023-00992

An integrative literature review on the impact of COVID-19 on maternal and child health in Africa. Senkyire EK, Ewetan O, Azuh D, et al (2023), BMC Pregnancy and Childbirth vol 23, no 6, January 2023

Africa has the highest rates of maternal deaths globally which have been linked to poorly functioning health care systems. The pandemic revealed already known weaknesses in the health systems in Africa, such as workforce shortages, lack of equipment and resources. The aim of this paper is to review the published literature on the impact of the COVID-19 pandemic on maternal and child health in Africa. The integrative review process delineated by Whittemore and Knafl (2005) was used to meet the study aims. The literature search of Ovid Medline, CINAHL, PubMed, WHO, Google and Google scholar, Africa journals online, MIDIRS was limited to publications between March 2020 and May 2022. All the studies went through the PRISMA stages, and 179 full text papers screened for eligibility, 36 papers met inclusion criteria. Of the studies, 6 were qualitative, 25 quantitative studies, and 5 mixed methods. Thematic analysis according to the methods of Braun and Clark (2006) were used to synthesize the data. From the search the six themes that emerged include: effects of lockdown measures, COVID concerns and psychological stress, reduced attendance at antenatal care, childhood vaccination, reduced facility-based births, and increase maternal and child mortality. A review of the literature revealed the following policy issues: The need for government to develop robust response mechanism to public health emergencies that negatively affect maternal and child health issues and devise health policies to mitigate negative effects of lockdown. In times of pandemic there is need to maintain special access for both antenatal care and child delivery services and limit a shift to use of untrained birth attendants to reduce maternal and neonatal deaths. These could be achieved by soliciting investments from various sectors to provide high-quality care that ensures sustainability to all layers of the population. (Author)
Full URL: https://doi.org/10.1186/s12884-022-05339-x

2023-00405

Pregnancy outcomes and vaccine effectiveness during the period of omicron as the variant of concern, INTERCOVID-2022: a multinational, observational study. Villar J, Conti CPS, Gunier RB, et al (2023), Lancet vol 401, no 10375, February 2023, pp 447-457

Background
In 2021, we showed an increased risk associated with COVID-19 in pregnancy. Since then, the SARS-CoV-2 virus has undergone genetic mutations. We aimed to examine the effects on maternal and perinatal outcomes of COVID-19 during pregnancy, and evaluate vaccine effectiveness, when omicron (B.1.1.529) was the variant of concern.
Methods
INTERCOVID-2022 is a large, prospective, observational study, involving 41 hospitals across 18 countries. Each woman with real-time PCR or rapid test, laboratory-confirmed COVID-19 in pregnancy was compared with two unmatched women without a COVID-19 diagnosis who were recruited concomitantly and consecutively in pregnancy or at delivery. Mother and neonate dyads were followed until hospital discharge. Primary outcomes were maternal morbidity and mortality index (MMMI), severe neonatal morbidity index (SNMI), and severe perinatal morbidity and mortality index (SPMMI). Vaccine effectiveness was estimated, adjusted by maternal risk profile.
Findings

We enrolled 4618 pregnant women from Nov 27, 2021 (the day after WHO declared omicron a variant of concern), to June 30, 2022: 1545 (33%) women had a COVID-19 diagnosis (median gestation 36·7 weeks [IQR 29·0–38·9]) and 3073 (67%) women, with similar demographic characteristics, did not have a COVID-19 diagnosis. Overall, women with a diagnosis had an increased risk for MMMI (relative risk [RR] 1·16 [95% CI 1·03–1·31]) and SPMMI (RR 1·21 [95% CI 1·00–1·46]). Women with a diagnosis, compared with those without a diagnosis, also had increased risks of SNMI (RR 1·23 [95% CI 0·88–1·71]), although the lower bounds of the 95% CI crossed unity. Unvaccinated women with a COVID-19 diagnosis had a greater risk of MMMI (RR 1·36 [95% CI 1·12–1·65]). Severe COVID-19 symptoms in the total sample increased the risk of severe maternal complications (RR 2·51 [95% CI 1·84–3·43]), perinatal complications (RR 1·84 [95% CI 1·02–3·34]), and referral, intensive care unit (ICU) admission, or death (RR 11·83 [95% CI 6·67–20·97]). Severe COVID-19 symptoms in unvaccinated women increased the risk of MMMI (RR 2·88 [95% CI 2·02–4·12]) and referral, ICU admission, or death (RR 20·82 [95% CI 10·44–41·54]). 2886 (63%) of 4618 total participants had at least a single dose of any vaccine, and 2476 (54%) of 4618 had either complete or booster doses. Vaccine effectiveness (all vaccines combined) for severe complications of COVID-19 for all women with a complete regimen was 48% (95% CI 22–65) and 76% (47–89) after a booster dose. For women with a COVID-19 diagnosis, vaccine effectiveness of all vaccines combined for women with a complete regimen was 74% (95% CI 48–87) and 91% (65–98) after a booster dose.
Interpretation
COVID-19 in pregnancy, during the first 6 months of omicron as the variant of concern, was associated with increased risk of severe maternal morbidity and mortality, especially among symptomatic and unvaccinated women. Women with complete or boosted vaccine doses had reduced risk for severe symptoms, complications, and death. Vaccination coverage among pregnant women remains a priority. (Author)
Full URL: https://doi.org/10.1016/S0140-6736(22)02467-9

2022-10083

Pregnancy outcomes after administration of monoclonal antibody therapy for COVID-19. Martinez-Baladejo MT, Graul AB, Gifford T, et al (2023), American Journal of Obstetrics & Gynecology MFM vol 5, no 1, January 2023, 100761

OBJECTIVE: SARS-CoV-2 was initially identified in Wuhan, China, and was discovered to be the causative agent of COVID-19. Since then, it has spread throughout the world and was declared a pandemic in March 2020.
Novel treatments have been used in an attempt to reduce the severity, morbidity, and mortality of the disease. It has been shown that pregnant patients are at significantly higher risk of requiring hospital admission, mortality, and presenting perinatal complications because of COVID-19.1,2 An update from the Centers for Disease Control and Prevention found that pregnant patients were 4 times more likely to require invasive ventilation than nonpregnant patients of the same age. In addition, they uncovered significant health disparities. Pregnant Asian and Native Hawaiian or Pacific Islander women had higher intensive care unit admissions. Hispanics and African Americans also had disproportionate rates of SARS-CoV-2 infection and a higher risk of hospitalization.1,3
Based on results from randomized controlled trials, several antispike monoclonal antibodies (mAbs) received Emergency Use Authorization (EUA) from the US Food and Drug Administration (FDA) in 2021.4, 5, 6 However, pregnant patients were not included in the clinical trials, and the effects on pregnancy outcomes are unknown. In this case series, we described the outcomes of 47 pregnant patients who had confirmed COVID-19 and who received antispike mAb therapy. To the best of our knowledge, our study is the second largest report of this kind and includes the use of sotrovimab in 10 pregnant patients.
STUDY DESIGN: After institutional review board approval, we performed a retrospective cohort study of 47 pregnant patients aged ≥18 years who received mAb infusion for the treatment of mild-to-moderate COVID-19 between April 2021 to January 2022. We extracted the data from St. Luke's University Health Network electronic medical record system. Mild disease was characterized by fever, change of taste or smell, and cough. Moderate disease was characterized by dyspnea, evidence of disease on imaging, or oxygen saturation of ≥94%. Severe disease was characterized by viral symptoms (mentioned in the definitions of mild and moderate diseases) with additional shortness of breath, and very severe disease was characterized by respiratory failure or shock. All patients had a confirmed positive result of direct SARS-CoV-2 testing. Patients were selected for mAb therapy if they met the eligibility criteria based on EUA guidelines released by the FDA and additional criteria defined by our institutional protocol (Figure). Pregnant patients were monitored for adverse reactions at the injection site, headache, dizziness,

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fever, weakness, nausea, vomiting, pruritus, rashes, anaphylaxis, diarrhea, and low blood pressure. We defined tolerability as a low rate of side effects and low admission rates. Data analysis was completed using SPSS (version 28; International Business Machines Corporation, Armonk, NY). RESULTS: A total of 47 pregnant patients were included in the study. The characteristics of the patient population are displayed in Table 1. The patients' mean age was 30 years with most patients being White (85.1%). Most patients were obese (63.8%) and in their third trimester of pregnancy (57.4%). Most patients (46.8%) received bamlanivimab and etesevimab treatment, and 10 patients (21.3%) received sotrovimab.(Author)

Full URL: https://doi.org/10.1016/j.ajogmf.2022.100761

2022-10082

Confirmation of preeclampsia-like syndrome induced by severe COVID-19: an observational study. Serrano B, Bonacina E, Garcia-Ruiz I, et al (2023), American Journal of Obstetrics & Gynecology MFM vol 5, no 1, January 2023, 100760

BACKGROUND

Since the outbreak of the COVID-19 pandemic, some studies have reported an increased preeclampsia incidence in pregnant women with SARS-CoV-2 infection. Several explanations for this association have been proposed, including a preeclampsia-like syndrome induced by severe COVID-19. This syndrome was described in a small case series and has not been confirmed in larger studies, and its effect on perinatal outcomes has not been studied.

OBJECTIVE

This study aimed to confirm the preeclampsia-like syndrome because of COVID-19 and to investigate its implications on pregnancy outcomes and prognosis.

STUDY DESIGN

This was a prospective, observational study conducted in a tertiary referral hospital. The inclusion criteria were pregnant women admitted to the intensive care unit for severe pneumonia because of COVID-19. They were classified into 3 groups based on clinical and laboratory findings: preeclampsia, preeclampsia-like syndrome, and women without preeclampsia features. The 3 cohorts were analyzed and compared at 3 different times: before, during, and after severe pneumonia. The main outcomes were incidence of adverse perinatal outcomes and signs and symptoms of PE, such as hypertension, proteinuria, thrombocytopenia, elevated liver enzymes, and increased angiogenic factors (soluble fms-like tyrosine kinase 1–to–placental growth factor ratio).

RESULTS

A total of 106 women were admitted to the intensive care unit because of severe pneumonia, and 68 women were included in the study. Of those, 53 (50.0%) did not meet the diagnostic criteria for preeclampsia and remained pregnant after pneumonia (non-preeclampsia); 7 (6.6%) met the diagnostic criteria for preeclampsia, had abnormal (>38) soluble fms-like tyrosine kinase 1–to–placental growth factor ratio (preeclampsia), and delivered during severe pneumonia, and 8 (7.5%) met the diagnostic criteria for preeclampsia, had normal (≤38) soluble fms-like tyrosine kinase 1–to–placental growth factor ratio (preeclampsia like), and did not deliver during pneumonia. Despite not having delivered, most preeclampsia-related features improved after severe pneumonia in women with preeclampsia-like syndrome. Women with preeclampsia had significantly poorer outcomes than women with preeclampsia-like syndrome or without preeclampsia.

CONCLUSION

More than 50% of women with severe COVID-19 and diagnostic criteria for preeclampsia may not be preeclampsia but a preeclampsia-like syndrome, which may affect up to 7.5% of women with severe COVID-19. Preeclampsia-like syndrome might have similar perinatal outcomes to those of normotensive women with severe pneumonia because of COVID-19. For these reasons, preeclampsia-like syndrome should be excluded by using soluble fms-like tyrosine kinase 1–to–placental growth factor ratio in future research and before making clinical decisions. (Author)

Full URL: https://doi.org/10.1016/j.ajogmf.2022.100760

2021-11579

SARS-CoV-2 Seroprevalence in Florida Department of Health in Palm Beach County Obstetric Clinics: A Cross-Sectional Study during the First Pandemic Surge. Gonik CO, Alonso AM, Gonik B (2023), American Journal of

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Perinatology vol 40, no 8, June 2023, pp 912-916

Objective Estimating severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) seroprevalence is an important part of the public health approach to coronavirus disease 2019 (COVID-19) understanding and containment. This is particularly relevant to an obstetric population because of implications in the management of the pregnant host, care of the newborn, and disease progression within the community.

Study Design A cross-sectional seroprevalence study was performed in four Department of Health Palm Beach County clinics from June 29, 2020, to August 5, 2020. Samples were collected from asymptomatic antepartum and postpartum participants. A web-based surveillance system was used to identify subsequent antibody or polymerase chain reaction (PCR) testing encounters.

Results A total of 163 of 618 subjects were seropositive (26.4%). Racial makeup was white 2.5%, black 19.0%, and Hispanic 78.5%. Positive serology was seen in 16.0, 35.6, and 30.1% of first, second, and third trimesters, respectively; 18.4% were positive postpartum. Only four patients voluntarily reported PCR positivity prior to antibody testing. Six home zip codes accounted for the majority (68.1%) of positive results. Thirty-two patients had repeat serology (65.6% positive and 34.4% negative). Of the 163 subjects, 65 underwent later PCR testing with 92% negative for SAR-CoV-2.

Conclusion Almost one in four subjects had serologic evidence of previous SARS-CoV-2 infection. These very high seroprevalence rates have not been previously reported and highlight the concern for health disparities in the United States. Most were asymptomatic and without a history for SARS-CoV-2 exposure. There was a loss of seropositivity in a significant number of subjects, raising concern for risk of reinfection, inadequate transplacental antibody transfer, and subsequent limited passive protection to the newborn. These seroprevalence data will also allow for better newborn follow-up of unanticipated consequences of COVID-19 infection in pregnancy. (Author)

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