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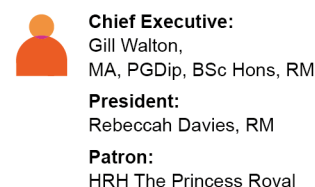
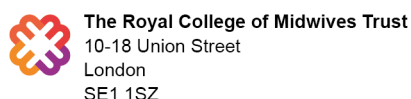
Search Pack P200 (2022)

Coronavirus (COVID-19) in pregnancy (2022)

Records on coronavirus (COVID-19) in pregnancy from 2022 only. For earlier records on this topic see P200 (2020) and P200 (2021). Includes choice and accessibility of maternal health services. Does not include records on COVID-19 vaccination in pregnancy (P201); 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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2025-00370

The Effect of Virtual Education on Fear Caused by COVID-19 Pandemic in Pregnant Women: A Quasi-Experimental Study. Nosratabadi M, Masoudiyekta L, Majidipour N, et al (2022), Journal of Midwifery & Reproductive Health vol 10, no 2, April 2022, pp 3248-3257

Background and Aim: Pregnant women are concerned about their health as well as their infants during the COVID-19 pandemic. The present study was conducted to investigate the effect of virtual education on fear caused by COVID-19 in pregnant women.

Methods: This quasi-experimental study was conducted in Dezful, Iran from November to January 2020. Seventy-three women were assigned to two groups of intervention (n=37) and control (n=36). Virtual training was implemented for the intervention group through sending a combination of audio and video files, educational videos, educational messages and messages for relaxation techniques every three days for four weeks during pregnancy, childbirth and hospital stay. The self-structured questionnaire of pregnant women's fear of COVID-19 was used to collect data two weeks after intervention. Paired t-test, Independent T Test-, Chi-square, McNemar, and Mann-Whitney U tests were used for data analysis.

Results: After the intervention, the mean score of fear caused by COVID-19 significantly decreased in pregnant women of the intervention (65.48±12.50) compared to the control group (92.22±14.03) (P<0.001). Also, the level of fear of Covid-19 significantly reduced in the intervention (86.5% moderate vs 13.5% severe fear) compared to the control group (8.3% moderate vs 91.7% severe fear) (P<0.001).

Conclusion: Virtual education reduces the fear of pregnant women caused by COVID-19 pandemic. Therefore, they are motivated to attend prenatal visits more regularly and this can improve pregnancy outcomes. Virtual education is therefore recommended to be used in health centers and midwifery clinics during Covid-19 pandemic. (Author)

Full URL: <https://doi.org/10.22038/jmrh.2022.62694.1784>

2025-00369

The Relationship between Health Anxiety and Prenatal Distress with Choosing Mode of Delivery among Pregnant Women During COVID-19 Epidemic: A Cross-Sectional Study. Nasab MB, Bahmaei H, Askari S, et al (2022), Journal of Midwifery & Reproductive Health vol 10, no 2, April 2022, pp 3240-3247

Background & aims: Corona-Virus is a serious infectious disease that was rapidly spread worldwide and caused considerable anxiety among people. Pregnant women are more prone to increased anxiety caused by the Covid-19 epidemic. This study was performed to evaluate the relationship between health anxiety and prenatal distress with choosing mode of delivery among pregnant women during COVID-19 epidemic in Iran.

Methods: This cross-sectional study was performed on 200 nulliparous pregnant women referred to the health centers of Ahvaz to receive the routine prenatal care. The questionnaires used were demographic, the health anxiety index-short form, and the prenatal distress questionnaire. At the end, the participants were asked by two questions whether their views on the mode of delivery has changed during COVID-19 epidemic.

Results: A significant difference was observed between choosing mode of delivery before and after the onset of the covid-19 epidemic (P=0.012). Health anxiety and prenatal distress score was higher in women who selected cesarean section (P<001) after the onset of the epidemic. Also, the maternal concern for fetal health was significantly higher in mothers who chose cesarean section than in women who chose vaginal delivery (P=0.014).

Conclusion: The findings of the current study showed that higher health anxiety and prenatal distress in pregnant women during the COVID-19 epidemic caused a significantly higher probability of selecting cesarean section as a mode of delivery. Therefore, it is very important to promote the mental health of pregnant women during the epidemic.

(Author)

Full URL: <https://doi.org/10.22038/jmrh.2022.62345.1758>

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2024-13753

Effective interventions to ensure MCH (Maternal and Child Health) services during pandemic related health emergencies (Zika, Ebola, and COVID-19): A systematic review. Palo SK, Dubey S, Negi S, et al (2022), PLoS ONE vol 17, no 5, May 2022, e0268106

Introduction

Ensuring accessible and quality health care for women and children is an existing challenge, which is further exacerbated during pandemics. There is a knowledge gap about the effect of pandemics on maternal, newborn, and child well-being. This systematic review was conducted to study maternal and child health (MCH) services utilization during pandemics (Zika, Ebola, and COVID-19) and the effectiveness of various interventions undertaken for ensuring utilization of MCH services.

Methodology

A systematic and comprehensive search was conducted in MEDLINE/PubMed, Cochrane CENTRAL, Embase, Epistemonikos, ScienceDirect, and Google Scholar. Of 5643 citations, 60 potential studies were finally included for analysis. The included studies were appraised using JBI Critical appraisal tools. Study selection and data extraction were done independently and in duplicate. Findings are presented narratively based on the RMNCHA framework by World Health Organization (WHO).

Results

Maternal and child health services such as antenatal care (ANC) visits, institutional deliveries, immunization uptake, were greatly affected during a pandemic situation. Innovative approaches in form of health care services through virtual consultation, patient triaging, developing dedicated COVID maternity centers and maternity schools were implemented in different places for ensuring continuity of MCH care during pandemics. None of the studies reported the effectiveness of these interventions during pandemic-related health emergencies.

Conclusion

The findings suggest that during pandemics, MCH care utilization often gets affected. Many innovative interventions were adopted to ensure MCH services. However, they lack evidence about their effectiveness. It is critically important to implement evidence-based appropriate interventions for better MCH care utilization. (Author)

Full URL: <https://doi.org/10.1371/journal.pone.0268106>

2024-13742

Access to maternal health services during COVID-19 pandemic, re-examining the three delays among pregnant women in Ilubabor zone, southwest Ethiopia: A cross-sectional study. Abdisa DK, Jaleta DD, Feyisa JW, et al (2022), PLoS ONE vol 17, no 5, May 2022, e0268196

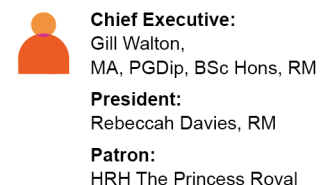
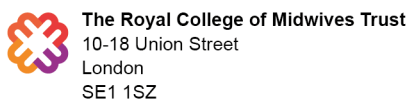
Background

All women require access to high-quality care during pregnancy, labor, and after childbirth. The occurrence of delay at any stage is one of the major causes of maternal mortality. There is, however, a scarcity of data on women's access to maternal health services during the COVID-19 pandemic. Therefore, the goal of this study was to assess the magnitude of delays in maternal health service utilization and its associated factors among pregnant women in the Ilubabor zone during the COVID-19 pandemic.

Methods

A facility-based cross-sectional study was conducted among 402 pregnant women selected by systematic random sampling. Data were analyzed using IBM SPSS Statistics version 26. Descriptive and summary statistics were used to describe the study population. Bivariate and multivariable logistic regression analyses were performed to identify factors associated with the outcome variables. Adjusted odds ratio with respective 95% CI was used to report significant covariates.

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Results

A total of 402 pregnant women participated in this study. The median age of the respondents was 25 years (IQR = 8). On average, a woman stays 1.76 hours (SD = 1.2) to make a decision to seek care. The prevalence of first, second and third delay were 51%, 48%, and 33.3%, respectively. Being unmarried [AOR (95% CI)], [0.145 (0.046–0.452)], being unemployed [AOR (95% CI)], [4.824 (1.685–13.814)], age [AOR (95% CI)], [0.227 (0.089–0.0579)], fear of COVID-19 [AOR (95% CI)], [1.112 (1.036–1.193)], urban residence [AOR (95% CI)], [0.517 (0.295–0.909)], and lack of birth preparedness [AOR (95% CI)], [6.526 (1.954–21.789)] were significantly associated with first delay. Being unmarried [AOR (95% CI)], [5.984 (2.930–12.223)], being unemployed [AOR (95% CI)], [26.978 (3.477–209.308)], and age [AOR (95% CI)], [0.438 (0.226–0.848)] were significantly associated with second delay. Having lengthy admission [AOR (95% CI)], [7.5 (4.053–13.878)] and non-spontaneous vaginal delivery [AOR (95% CI)], [1.471 (1.018–1.999)] were significantly associated with third delay.

Conclusion

This study identified a significant proportion of mothers experiencing delays, although there were no data to suggest exacerbated delays in utilizing maternal health services due to fear of the COVID-19 pandemic. The proportion of maternal delay varies with different factors. Improving the decision-making capacity of women is, therefore, essential. (Author)

Full URL: <https://doi.org/10.1371/journal.pone.0268196>

2024-13367

Pregnant women's unmet need to communicate with a health professional during the SARS-CoV-2 pandemic

lockdown in France: The Covimater cross-sectional study. Araujo-Chaveron L, Doncarli A, Crenn-Hebert C, et al (2022), PLoS ONE vol 17, no 4, April 2022, e0266996

During the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic lockdown, communication between pregnant women and health professionals may have become complicated due to restrictions on movement and saturated health services. This could have impacts on pregnancy monitoring and women's wellbeing. We aimed to i) describe the unmet need of pregnant women living in France to communicate with health professionals about the pandemic and their pregnancy during the lockdown, ii) assess the socio-demographic, medical and contextual factors associated with this unmet need. The Covimater cross-sectional study, conducted in July 2020, includes data on 500 adult women's experiences of pregnancy during the first lockdown period in France (i.e., from March to May 2020). The women, all residents in metropolitan France, answered a web-based questionnaire about their conversations with health professionals during the lockdown, as well as their social and medical characteristics. A robust variance Poisson regression model was used to estimate crude or adjusted prevalence ratios (aPRs) for their unmet need to communicate with health professionals about the pandemic and their pregnancy. Forty-one percent of participants reported an unmet need to communicate with a health professional during the lockdown, mainly about the risk of transmitting SARS-CoV-2 to their baby and the consequences for the latter. Factors associated were: i) being professionally inactive (aPR = 1.58, CI95%[(1.14–2.21)], ii) having an educational level below secondary school diploma (1.38, [1.05, 1.81]), iii) having experienced serious arguments/violence (2.12, [1.28–3.52]), iv) being very worried about the pandemic (1.41, [1.11–1.78]), v) being primiparous (1.36, [1.06–1.74]) and vi) having had pregnancy consultations postponed/cancelled by health professionals during the lockdown (1.35, [1.06–1.73]). These results can be used to develop targeted strategies that ensure pregnant women are able to i) communicate with health professionals about the potential impact of the SARS-CoV-2 pandemic on their pregnancy, and ii) access up-to-date and reliable information on the consequences of SARS-CoV-2 for themselves and their child. (Author)

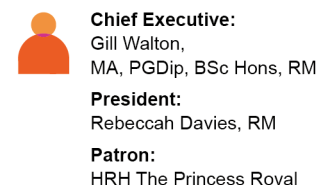
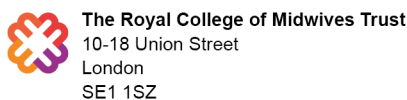
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2024-12972

Change in childbearing intention, use of contraception, unwanted pregnancies, and related adverse events during

the COVID-19 pandemic: Results from a panel study in rural Burkina Faso. Druetz T, Cooper S, Bicaba F, et al (2022), PLoS Global Public Health vol 2, no 4, April 2022, e0000174

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Evidence on how the COVID-19 pandemic has affected women's reproductive health remains scarce, particularly for low- and middle-income countries. Deleterious indirect effects seem likely, particularly on access to contraception and risk of unwanted pregnancies, but rigorous evaluations using quasi-experimental designs are lacking. Taking a diachronic perspective, we aimed to investigate the effects of the pandemic on four indicators of women's reproductive health: history of recent adverse events during pregnancy (past), use of contraception and unwanted pregnancies (present), and childbearing intentions (future). This study was conducted in four rural health districts of Burkina Faso: Banfora, Leo, Sindou and Tenado. Two rounds of household surveys (before and during the pandemic) were conducted in a panel of 696 households using standardized questionnaires. The households were selected using a stratified two-stage random sampling method. All women aged 15-49 years living in the household were eligible for the study. The same households were visited twice, in February 2020 and February 2021. The effects were estimated by fitting hierarchical regression models with fixed effects or random intercepts at the individual level. A total of 814 and 597 women reported being sexually active before and during the COVID-19 pandemic, respectively. The odds of not wanting (any more) children were two times higher during the pandemic than before (2.0, 95% CI [1.32-3.04]). Among those with childbearing intention, the average desired delay until the next pregnancy increased from 28.7 to 32.8 months. When comparing 2021 versus 2020, there was an increase in the adjusted odds ratio of contraception use (1.23, 95% CI [1.08-1.40]), unwanted pregnancies (2.07, 95% CI [1.01-4.25]), and self-reported history of miscarriages, abortions, or stillbirths in the previous 12 months (2.4, 95% CI [1.04-5.43]). Our findings in rural Burkina Faso do not support the predicted detrimental effects of COVID-19 on the use of family planning services in LMICs, but confirm that it negatively affects pregnancy intentions. Use of contraception increased significantly among women in the panel, but arguably not enough to avoid an increase in unwanted pregnancies.

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Full URL: <https://doi.org/10.1371/journal.pgph.0000174>

2024-11756

Development of Nightingale Frontline: a leadership support service for nurses and midwives during the COVID-19 crisis. Bond C, Stacey G, Matheson J, et al (2022), *BMJ Leader* vol 6, no 4, December 2022, pp 307-311

Background

As COVID-19 hit the UK, it was apparent that frontline healthcare workers would be faced with challenges they had never encountered before. The longer-term leadership support needs of nurses and midwives were considered central to how they would psychologically emerge from the COVID-19 response. In response, a national leadership support service for nurse and midwife leaders at all levels, was rapidly established.

Methods

A collaborative approach was used, drawing from an established community of healthcare leadership development consultants and senior healthcare leaders. Practical plans for how the service would run were formulated via online meetings, held between February and March 2020. An internal questionnaire was distributed to attendees, requesting demographic data and feedback to capture the perceived impact of the service on leadership.


Results

Overall, confidence in leadership ability/skills increased after attending the service; 68.8% of those who completed post-attendance questionnaires reported having learnt new leadership skills and a motivation to facilitate co-consulting sessions for their teams. The service was positively appraised and there were reports of a degree of influence on leadership, and improved confidence after attending.


Conclusion

Leadership and well-being support provided by an independent and external organisation can offer a unique and safe forum for reflection and for healthcare leaders to decompress. This requires a sustainable investment to mitigate the

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2024-11457

Coronavirus Disease 2019 (COVID-19) Disease Severity: Pregnant vs Nonpregnant Women at 82 Facilities. Hsu AL, Ohler AM, Goldstein A, et al (2022), *Clinical Infectious Diseases* vol 74, no 3, 1 February 2022, pp 467-471

Background: Pregnancy has been reported to be a risk factor for severe COVID-19. We evaluated the impact of pregnancy on severe COVID-19 and mortality in an electronic medical record (EMR) database that enabled exclusion of labor and delivery (L&D) encounters.

Methods: In this retrospective cohort study, EMRs from 82 healthcare facilities in the Cerner COVID-19 Datamart were analyzed. The study comprised 38 106 individuals aged 18-45 years old with COVID-19 who had emergency department, urgent care, or inpatient encounters from December 2019 to September 2020. Subgroups were balanced through propensity score weights for age, race, smoking status, and number of comorbidities. The primary outcome was COVID-19-related mortality; secondary outcomes were markers of severe COVID-19: intubations, mechanical ventilation, use of vasopressors, diagnosis of sepsis, and diagnosis of acute respiratory distress syndrome.

Results: In comparing pregnant and nonpregnant women, no statistical differences were found for markers of severe COVID-19, after adjusting for age, smoking, race, and comorbidities. The adjusted odds of an inpatient encounter were higher for pregnant vs nonpregnant women (adjusted odds ratio [aOR], 13.2; 95% confidence interval [CI], 11.6-15.3; $P < .001$), but notably lower after excluding L&D encounters (aOR, 2.3; 95% CI, 1.89-2.88; $P < .001$). In comparison to women without L&D encounters, hospitalization was significantly more likely for men.

Conclusions: We did not find an increased risk of severe COVID-19 or mortality in pregnancy. Hospitalization does not necessarily indicate severe COVID-19 in pregnancy, as half of pregnant patients with COVID-19 were admitted for L&D encounters in this study.

Keywords: COVID-19; COVID-19 mortality; pregnancy; severe COVID-19.

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2024-10678

Obstetric analgesia and anaesthesia in SARS-CoV-2-positive parturients across 10 maternity units in the north-west of England: a retrospective cohort study. Bhatia K (2022), *Anaesthesia* vol 77, no 4, April 2022, pp 389-397

Since the start of the COVID-19 pandemic, few studies have reported anaesthetic outcomes in parturients with SARS-CoV-2 infection. We reviewed the labour analgesic and anaesthetic interventions utilised in symptomatic and asymptomatic parturients who had a confirmed positive test for SARS-CoV-2 across 10 hospitals in the north-west of England between 1 April 2020 and 31 May 2021. Primary outcomes analysed included the analgesic/anaesthetic technique utilised for labour and caesarean birth. Secondary outcomes included a comparison of maternal characteristics, caesarean birth rate, maternal critical care admission rate along with adverse composite neonatal outcomes. A positive SARS-CoV-2 test was recorded in 836 parturients with 263 (31.4%) reported to have symptoms of COVID-19. Neuraxial labour analgesia was utilised in 104 (20.4%) of the 509 parturients who went on to have a vaginal birth. No differences in epidural analgesia rates were observed between symptomatic and asymptomatic parturients (OR 1.03, 95%CI 0.64–1.67; $p = 0.90$). The neuraxial anaesthesia rate in 310 parturients who underwent caesarean delivery was 94.2% (95%CI 90.6–96.0%). The rates of general anaesthesia were similar in symptomatic and asymptomatic parturients (6% vs. 5.7%; $p = 0.52$). Symptomatic parturients were more likely to be multiparous (OR 1.64, 95%CI 1.19–2.22; $p = 0.002$); of Asian ethnicity (OR 1.54, 1.04–2.28; $p = 0.03$); to deliver prematurely (OR 2.16, 95%CI 1.47–3.19; $p = 0.001$); have a higher caesarean birth rate (44.5% vs. 33.7%; OR 1.57, 95%CI 1.16–2.12; $p = 0.008$);

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and a higher critical care utilisation rate both pre- (8% vs. 0%, $p = 0.001$) and post-delivery (11% vs. 3.5%; OR 3.43, 95%CI 1.83–6.52; $p = 0.001$). Eight neonates tested positive for SARS-CoV-2 while no differences in adverse composite neonatal outcomes were observed between those born to symptomatic and asymptomatic mothers (25.8% vs. 23.8%; OR 1.11, 95%CI 0.78–1.57; $p = 0.55$). In women with COVID-19, non-neuraxial analgesic regimens were commonly utilised for labour while neuraxial anaesthesia was employed for the majority of caesarean births. Symptomatic women with COVID-19 are at increased risk of significant maternal morbidity including preterm birth, caesarean birth and peripartum critical care admission. (Author)

2024-10677

Patterned Outcomes, Unpatterned Counterfactuals, and Spurious Results: Perinatal Health Outcomes Following

COVID-19. Gemmill A, Casey JA, Margerison CE, et al (2022), American Journal of Epidemiology vol 191, no 11, November 2022, pp 1837-1841

The epidemiologic literature estimating the indirect or secondary effects of the coronavirus disease 2019 (COVID-19) pandemic on pregnant people and gestation continues to grow. Our assessment of this scholarship, however, leads us to suspect that the methods most commonly used may lead researchers to spurious inferences. This suspicion arises because the methods do not account for temporal patterning in perinatal outcomes when deriving counterfactuals, or estimates of the outcomes had the pandemic not occurred. We illustrate the problem in 2 ways. First, using monthly data from US birth certificates, we describe temporal patterning in 5 commonly used perinatal outcomes. Notably, for all but 1 outcome, temporal patterns appear more complex than much of the emerging literature assumes. Second, using data from France, we show that using counterfactuals that ignore this complexity produces spurious results. We recommend that subsequent investigations on COVID-19 and other perturbations use widely available time-series methods to derive counterfactuals that account for strong temporal patterning in perinatal outcomes. (Author)

2024-10669

International Registry of Coronavirus Exposure in Pregnancy (IRCEP): Cohort Description and Methodological

Considerations. Hernández-Díaz S, Smith LH, Dollinger C, et al (2022), American Journal of Epidemiology vol 191, no 6, June 2022, pp 967-979

Limited data are available about the potential health effects of infection with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) on pregnant women and their developing offspring. We established the International Registry of Coronavirus Exposure in Pregnancy (IRCEP) to provide data on the risk of major adverse obstetric and neonatal outcomes among women with varying degrees of severity and timing of coronavirus disease 2019 (COVID-19) during pregnancy. We describe here the cohort and share the lessons learned. The IRCEP enrolls women tested for SARS-CoV-2 or with a clinical diagnosis of COVID-19 during pregnancy and obtains information using an online data collection system. By March 2021, 17,532 participants from 77 countries had enrolled; 54% enrolled during pregnancy and 46% afterward. Among women with symptomatic COVID-19 with a positive SARS-CoV-2 test ($n = 4,934$), symptoms were mild in 41%, moderate in 52%, and severe in 7%; 7.7% were hospitalized for COVID-19 and 1.7% were admitted to an intensive care unit. The biggest challenges were retention of participants enrolled during pregnancy and the potential bias introduced when participants enroll after pregnancy outcomes are known. Multiple biases need to be considered and addressed when estimating and interpreting the effects of COVID-19 in pregnancy in these types of cohorts. (Author)

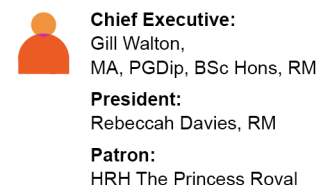
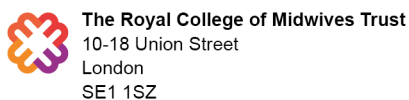
2024-10662

Food safety knowledge among pregnant women in the United Arab Emirates amid the COVID-19 pandemic.

Daour RA, Osaili TM, Hashim M, et al (2022), PLoS ONE vol 10, no 12, December 2022, e0279810

Studies have indicated shortcomings in food safety knowledge and practices among pregnant women in the Arab region. A high-risk group for having severe outcomes from foodborne illnesses. This study aimed to assess self-reported food safety knowledge and practices among pregnant women in the UAE during the COVID-19 pandemic. A total of 354 pregnant women residing in the UAE completed an online survey between October 2021 and January 2022. The questionnaire included socio-demographic information, food safety knowledge, and food practices

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during the COVID-19 pandemic. Correct answers for food safety knowledge were scored out of 50 and the total score was compared by sociodemographic characteristics. The total mean score for the study population was 26.7 ± 4.6 out of 50. Participants had good knowledge about foodborne diseases (81.3%) and personal hygiene practices (61.8%). While they were least knowledgeable about cross-contamination (43.3%) and temperature control practices (35.8%). Significantly higher knowledge scores were observed with higher levels of education and primigravida women ($p < 0.05$). Knowledge about the COVID-19 virus and its relation to food safety was adequate for most participants. This study infers the need for food safety-related education and training programs to reduce the risk of foodborne disease among this vulnerable group. It also highlights the need to enhance the role of healthcare professionals as trusted sources of information in improving food safety during pregnancy. (Author)

Full URL: <https://doi.org/10.1371/journal.pone.0279810>

2024-10631

Prevalence and correlates of teenage pregnancy among in-school teenagers during the COVID-19 pandemic in Hoima district western Uganda—A cross sectional community-based study. Musinguzi M, Kumakech E, Auma AG, et al (2022), PLoS ONE vol 17, no 12, December 2022, e0278772

Background

The COVID-19 pandemic related restrictions and lockdown measures had compromised the routine delivery and access of sexual and reproductive health and rights services to the population including the teenage girls. However, the teenage pregnancy rates during COVID-19 pandemic period were poorly documented. This study aimed at determining the prevalence and the factors associated with teenage pregnancy among in-school teenage girls during the COVID-19 pandemic period in Hoima District Uganda.

Methods

This was a descriptive cross-sectional study that employed quantitative research methods. A total of 314 in-school teenage girls aged 13–19 years were selected using a multi-stage sampling techniques. Interviewer-administered questionnaires were used to collect the data from the participant's homes during the period December 2021-January 2022. Data analysis was done using univariate, bi-variate, and multivariate.

Results

The prevalence of teenage pregnancy among the in-school teenage girls in Hoima district Uganda was 30.6% [96/314]. Higher teenage pregnancy rates were prevalent among the unmarried teenage girls [aOR: 9.6; 95%CI: 4.64–19.87; $p = 0.000$], teenage girls studying from boarding schools [aOR 2.83, 95%CI 1.36–5.86, $p = 0.005$], contraceptive non-users [aOR: 2.54; 95%CI: 1.12–5.4; $p = 0.015$] and teenage girls involved in sex trade [aOR 3.16, 95%CI 1.5–6.7, $p = 0.003$]. The factors associated with the reduced likelihood for teenage pregnancy included being an adult teenage girl aged 18–19 years [aOR: 0.15; 95%CI: 0.07–0.32; $p = 0.000$] and not receiving sex education during the period [aOR 0.36, 95%CI 0.13–0.62, $p = 0.024$].

Conclusion


The results indicated that 3 out of 10 in-school teenage girls from Hoima district Uganda got pregnant during the COVID-19 pandemic period of 2021. Teenage pregnancy was prevalent among teenage girls who don't use modern contraceptive methods and those involved in sex trade. Teenage pregnancy was however, less prevalent among adult teenage girls aged 18–19 years. The findings point to the need for health stakeholders to innovate creative policies, contingency plans and programmes aimed at delaying age for sexual activities, increasing contraceptive use and minimizing pregnancy risk from sex trade among in-school teenage girls during COVID-19 pandemics. (Author)

Full URL: <https://doi.org/10.1371/journal.pone.0278772>


2024-10598

Making maternity and neonatal care personalised in the COVID-19 pandemic: Results from the Babies Born Better survey in the UK and the Netherlands. van den Berg LMM, Akooji N, Thomson G, et al (2022), PLoS ONE vol 17, no 11, November

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Background

The COVID-19 pandemic had a severe impact on women's birth experiences. To date, there are no studies that use both quantitative and qualitative data to compare women's birth experiences before and during the pandemic, across more than one country.

Aim

To examine women's birth experiences during the COVID-19 pandemic and to compare the experiences of women who gave birth in the United Kingdom (UK) or the Netherlands (NL) either before or during the pandemic.

Method

This study is based on analyses of quantitative and qualitative data from the online Babies Born Better survey. Responses recorded by women giving birth in the UK and the NL between June and December 2020 have been used, encompassing women who gave birth between 2017 and 2020. Quantitative data were analysed descriptively, and chi-squared tests were performed to compare women who gave birth pre- versus during pandemic and separately by country. Qualitative data was analysed by inductive thematic analysis.

Findings

Respondents in both the UK and the NL who gave birth during the pandemic were as likely, or, if they had a self-reported above average standard of life, more likely to rate their labour and birth experience positively when compared to women who gave birth pre-pandemic. This was despite the fact that those labouring in the pandemic reported a lack of support and limits placed on freedom of choice. Two potential explanatory themes were identified in the qualitative data: respondents had lower expectations of care during the pandemic, and they appreciated the efforts of staff to give individualised care, despite the rules.

Conclusion

Our study implies that many women labouring during the COVID-19 pandemic experienced restrictions, but their experience was mitigated by staff actions. However, personalised care should not be maintained by the good will of care providers, but should be a priority in maternity care policy to benefit all service users equitably. (Author)

Full URL: <https://doi.org/10.1371/journal.pone.0267415>

2024-10597

Knowledge, attitudes, and practices (KAP) towards COVID-19 pandemic among pregnant women in a tertiary hospital in Karachi, Pakistan. Naz S, Dur E Shawar S, Saleem S, et al (2022), PLoS ONE vol 17, no 11, November 2022, e0274252

Background

The aim of this study was to evaluate the knowledge, attitude, and practices (KAP) of the pregnant population during the COVID-19 pandemic in a tertiary care hospital.

Methods

This cross-sectional study was conducted at Aga Khan University Hospital, Karachi, Pakistan. KAP towards COVID-19 was assessed using 21-item questionnaires. A score for each category was calculated and points were summed. The outcome variables of KAP were compared with demographic characteristics. Data were analyzed by using SPSS 19.

Results

A total of 377 patients participated in the study. The majority of the patients were multiparous (36.8%) in the age group of 30-40years (42.4%). More than 90% of patients were aware of COVID-19 symptoms and mode of transmission. They were aware of no cure for disease and optimum social distance. Although < 50% of patients truly answered the questions regarding the impact of COVID-19 on the risk of congenital malformation, vertical transmission, and the effect of infection on the mode of delivery. Regarding attitude and practices, > 90% of patients were anxious about fetal and personal safety, they are using a facemask, sanitizing their hands regularly, and avoiding social gatherings.

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Univariate and multivariable linear regression analysis showed statistically significant results among demographic variables (age, parity, family members, occupational status, and source of information).

Conclusion

Pregnant patients demonstrated inadequate knowledge regarding the impact of COVID-19 on pregnancy. However positive attitude and practices on preventive measures were good. This highlights the need for health education for pregnant women for COVID-19 to improve knowledge on a constant basis. (Author)

Full URL: <https://doi.org/10.1371/journal.pone.0274252>

2024-10573

Severe COVID-19 in pregnancy has a distinct serum profile, including greater complement activation and dysregulation of serum lipids.

Altendahl M, Mok T, Jang C, et al (2022), PLoS ONE vol 17, no 11, November 2022, e0276766

Background

Pregnancies complicated by Coronavirus Disease 2019 (COVID-19) are at an increased risk of severe morbidity due to physiologic changes in immunologic, cardiovascular, and respiratory function. There is little is known about how severity of COVID-19 changes protein and metabolite expression in pregnancy.

Objective

This study aims to investigate the pathophysiology behind various clinical trajectories in pregnant patients diagnosed with COVID-19 using multi-omics profiling.

Study design

This is a prospective cohort study of 30 pregnant patients at a single tertiary care center. Participants were categorized by severity of COVID-19 disease (control, asymptomatic, mild/moderate, or severe). Maternal serum samples underwent LC-MS-based multiomics analysis for profiling of proteins, lipids, electrolytes, and metabolites. Linear regression models were used to assess how disease severity related to analyte levels. Reactome pathway enrichment analysis was conducted on differential analytes.

Results

Of 30 participants, 25 had confirmed diagnosis of COVID-19 (6 asymptomatic (one post-infection), 13 mild/moderate (all post-infection), 6 severe), and 5 participants were controls. Severe COVID-19 was associated with distinct profiles demonstrating significant proteomic and lipidomic signatures which were enriched for annotations related to complement and antibody activity. (FDR < 0.05). Downregulated analytes were not significantly enriched but consisted of annotation terms related to lipoprotein activity (FDR > 0.2). Post-infection mild/moderate COVID-19 did not have significantly altered serum protein, metabolite, or lipid metabolite levels compared to controls.

Conclusions

Pregnancies with severe COVID-19 demonstrate greater inflammation and complement activation and dysregulation of serum lipids. This altered multiomic expression provides insight into the pathophysiology of severe COVID-19 in pregnancy and may serve as potential indicators for adverse pregnancy outcomes. (Author)

Full URL: <https://doi.org/10.1371/journal.pone.0276766>

2024-10569

Factors associated with willingness to take COVID-19 vaccine among pregnant women at Gondar town, Northwest

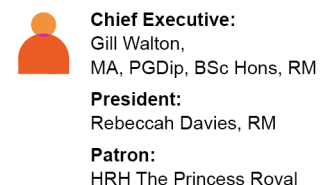
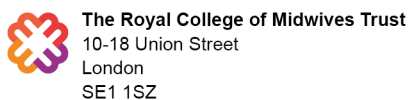
Ethiopia: A multicenter institution-based cross-sectional study. Aynalem ZB, Bogale TW, Bantie GM, et al (2022), PLoS ONE vol 17, no 11, November 2022, e0276763

Background

Coronavirus disease has spread worldwide since late 2019. Vaccination is critical in controlling this pandemic.

However, vaccine acceptance among pregnant women is not well-studied. Therefore, this study aimed to assess the

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COVID-19 vaccine acceptance and associated factors among pregnant women attending antenatal care clinics in Gondar town, Northwest Ethiopia.

Methods

An institution-based cross-sectional study was conducted among pregnant women attending antenatal care clinics at Gondar town, Northwest Ethiopia, 2021. About 510 study subjects were selected using a systematic random sampling technique from August 25 to September 10/2021. Data collection was done by using an interviewer-administered, structured questionnaire. Epi-info 7.2 was used to enter data and then exported to SPSS version 25 software for analysis. Bivariable and multivariable binary logistic regression models were used to identify factors associated with the outcome variable. Variables with a p-value < 0.2 in the bivariable analysis were entered into the multivariable analysis to control for possible confounders. Statistical significance is determined using an adjusted odds ratio and 95% confidence interval (CI) at a p-value of < 0.05.

Results

Of 510 participants, 211 (41.4%) were willing to take COVID-19 vaccines. Maternal age \geq 35 years (AOR: 5.678, 95% CI: 1.775–18.166), having contact history with COVID-19 diagnosed people (AOR: 7.724, 95% CI: 2.183, 27.329), having a pre-existing chronic disease (AOR: 3.131, 95% CI: 1.700–5.766), good knowledge about COVID-19 vaccine (AOR: 2.391, 95% CI: 1.144, 4.998) and good attitude towards COVID-19 vaccine (AOR: 2.128, 95% CI: 1.348) were significantly associated with the outcome variable.

Conclusions

The willingness to take COVID-19 vaccine among pregnant mothers was low. Age, contact history with COVID-19 diagnosed people, chronic disease, knowledge, and attitude towards COVID-19 vaccine were factors associated with COVID-19 vaccine willingness. To enhance the COVID-19 vaccine acceptance, the government with different stakeholders should strengthen public education about the importance of getting COVID-19 vaccine. (Author)

Full URL: <https://doi.org/10.1371/journal.pone.0276763>

2024-10551

Temporal Events Detector for Pregnancy Care (TED-PC): A rule-based algorithm to infer gestational age and delivery date from electronic health records of pregnant women with and without COVID-19. Lyu T, Liang C, Liu J, et al (2022), PLoS ONE vol 17, no 10, October 2022, e0276923

Objective

Identifying the time of SARS-CoV-2 viral infection relative to specific gestational weeks is critical for delineating the role of viral infection timing in adverse pregnancy outcomes. However, this task is difficult when it comes to Electronic Health Records (EHR). In combating the COVID-19 pandemic for maternal health, we sought to develop and validate a clinical information extraction algorithm to detect the time of clinical events relative to gestational weeks.

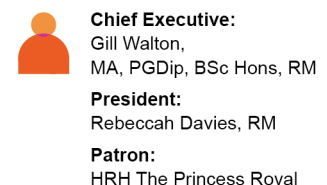
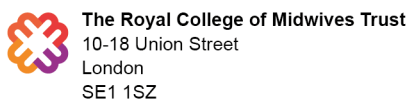
Materials and methods

We used EHR from the National COVID Cohort Collaborative (N3C), in which the EHR are normalized by the Observational Medical Outcomes Partnership (OMOP) Common Data Model (CDM). We performed EHR phenotyping, resulting in 270,897 pregnant women (June 1st, 2018 to May 31st, 2021). We developed a rule-based algorithm and performed a multi-level evaluation to test content validity and clinical validity, and extreme length of gestation (<150 or >300).

Results

The algorithm identified 296,194 pregnancies (16,659 COVID-19, 174,744 without COVID-19) in 270,897 pregnant women. For inferring gestational age, 95% cases (n = 40) have moderate-high accuracy (Cohen's Kappa = 0.62); 100% cases (n = 40) have moderate-high granularity of temporal information (Cohen's Kappa = 1). For inferring delivery dates, the accuracy is 100% (Cohen's Kappa = 1). The accuracy of gestational age detection for the extreme length of gestation is 93.3% (Cohen's Kappa = 1). Mothers with COVID-19 showed higher prevalence in obesity or overweight

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(35.1% vs. 29.5%), diabetes (17.8% vs. 17.0%), chronic obstructive pulmonary disease (0.2% vs. 0.1%), respiratory distress syndrome or acute respiratory failure (1.8% vs. 0.2%).

Discussion

We explored the characteristics of pregnant women by different gestational weeks of SARS-CoV-2 infection with our algorithm. TED-PC is the first to infer the exact gestational week linked with every clinical event from EHR and detect the timing of SARS-CoV-2 infection in pregnant women.

Conclusion

The algorithm shows excellent clinical validity in inferring gestational age and delivery dates, which supports multiple EHR cohorts on N3C studying the impact of COVID-19 on pregnancy. (Author)

Full URL: <https://doi.org/10.1371/journal.pone.0276923>

2024-10470

Sero-surveillance for IgG to SARS-CoV-2 at antenatal care clinics in three Kenyan referral hospitals: Repeated cross-sectional surveys 2020–21. Lucinde RK, Mugo D, Bottomley C, et al (2022), PLoS ONE vol 17, no 10, October 2022, e0265478

Introduction

The high proportion of SARS-CoV-2 infections that have remained undetected presents a challenge to tracking the progress of the pandemic and estimating the extent of population immunity.

Methods

We used residual blood samples from women attending antenatal care services at three hospitals in Kenya between August 2020 and October 2021 and a validated IgG ELISA for SARS-CoV-2 spike protein and adjusted the results for assay sensitivity and specificity. We fitted a two-component mixture model as an alternative to the threshold analysis to estimate of the proportion of individuals with past SARS-CoV-2 infection.

Results

We estimated seroprevalence in 2,981 women; 706 in Nairobi, 567 in Busia and 1,708 in Kilifi. By October 2021, 13% of participants were vaccinated (at least one dose) in Nairobi, 2% in Busia. Adjusted seroprevalence rose in all sites; from 50% (95%CI 42–58) in August 2020, to 85% (95%CI 78–92) in October 2021 in Nairobi; from 31% (95%CI 25–37) in May 2021 to 71% (95%CI 64–77) in October 2021 in Busia; and from 1% (95% CI 0–3) in September 2020 to 63% (95% CI 56–69) in October 2021 in Kilifi. Mixture modelling, suggests adjusted cross-sectional prevalence estimates are underestimates; seroprevalence in October 2021 could be 74% in Busia and 72% in Kilifi.

Conclusions

There has been substantial, unobserved transmission of SARS-CoV-2 in Nairobi, Busia and Kilifi Counties. Due to the length of time since the beginning of the pandemic, repeated cross-sectional surveys are now difficult to interpret without the use of models to account for antibody waning. (Author)

Full URL: <https://doi.org/10.1371/journal.pone.0265478>

2024-10451

Demographic and epidemiological characteristics of pregnant and postpartum women who died from severe acute respiratory syndrome in Brazil: A retrospective cohort study comparing COVID-19 and nonspecific etiologic causes.

Franco VF, Rodrigues AS, Junior ERR, et al (2022), PLoS ONE vol 17, no 10, October 2022, e0274797

The objective of this study is to compare the demographic characteristics and symptoms in pregnant and postpartum women who died from Severe Acute Respiratory Syndrome (SARS) caused by COVID-19 or by nonspecific cause in different states of Brazil. This is a retrospective cohort study and the analysis was conducted on SARS death records between 02/16/2020 and 04/17/2021, obtained from the Information System for the Epidemiological Surveillance of Influenza (Sistema de Informação da Vigilância Epidemiológica da Gripe, SIVEP-Gripe). Pregnant and postpartum

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women, aged between 10 and 55 years, who died from SARS, were included and classified into two groups: SARS due to confirmed COVID-19 or SARS due to nonspecific cause. The cases were analyzed according to the women's demographic and epidemiological characteristics, clinical symptoms, risk factors and disease evolution. As results, 19,333 pregnant and postpartum women were identified. From these, 1,279 died (1,026 deaths from COVID-19 and 253 deaths from SARS with nonspecific cause). The groups showed significant differences in age, education, race, and occurrence of obesity and chronic lung disease. The group of women who died from confirmed COVID-19 presented a significantly higher frequency of symptoms of fever, cough, fatigue, loss of taste, and loss of smell, as well as a higher rate of admission to the intensive care unit (ICU). Data analysis draws attention to the high number of cases of SARS without a causal diagnosis, the low access to ICU and orotracheal intubation (OTI), which might be explained by the demographic and regional inequalities in the access to healthcare. (Author)

Full URL: <https://doi.org/10.1371/journal.pone.0274797>

2024-10163

Changes in fetal growth restriction and retinopathy of prematurity during the coronavirus disease 2019 pandemic: A cross-sectional study. Obata S, Matsumoto R, Kakinoki M, et al (2022), PLoS ONE vol 17, no 3, March 2022, e0265147

Purpose

To investigate changes in the number of preterm infants, low birth weight infants, and infants with fetal growth restriction (FGR) or retinopathy of prematurity (ROP) during the coronavirus disease 2019 (COVID-19) pandemic.

Methods

In this retrospective cross-sectional study, we reviewed the medical records of infants born and admitted to the neonatal intensive care unit and growth care unit of Shiga University of Medical Science Hospital before the COVID-19 pandemic (April 1, 2019 to September 30, 2019) and during the pandemic (April 1, 2020 to September 30, 2020). Medical records of infants' mothers were also collected. Preterm infants, low birth weight infants, infants with FGR, infant and maternal factors associated with FGR, and infants requiring treatment for ROP were compared between the two periods.

Results

There were fewer infants born at < 28 weeks of gestation, infants with birth weight < 1,500 g, and infants with FGR during the pandemic period than the pre-pandemic period (pre-pandemic: n = 4 vs. during pandemic: n = 0, P = 0.048; pre-pandemic: n = 15 vs. during pandemic: n = 6, P = 0.02; and pre-pandemic: n = 31 vs. during pandemic: n = 12, P = 0.0002, respectively). There were no significant differences in any infant or maternal factors associated with FGR. The number of infants requiring treatment for ROP decreased during the pandemic, although this difference was not statistically significant (pre-pandemic: n = 3 vs. during pandemic: n = 0, P = 0.08).

Conclusions

Our findings showed a reduction in the number of infants with FGR during the COVID-19 pandemic. The number of infants born at < 28 weeks of gestation and infants with birth weight < 1,500 g also decreased during the pandemic period. There was a trend toward fewer infants requiring treatment for ROP during the COVID-19 pandemic. (Author)

Full URL: <https://doi.org/10.1371/journal.pone.0265147>

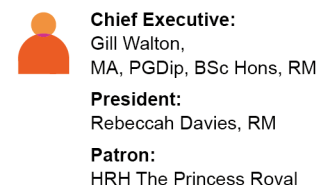
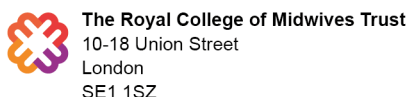
2024-10152

SARS-CoV-2 infection in pregnant women assisted in a high-risk maternity hospital in Brazil: Clinical aspects and obstetric outcomes. Ferrugini CLP, Boldrini NAT, Costa FLS, et al (2022), PLoS ONE vol 17, no 3, March 2022, e0264901

Background

The spread of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection, the possible development of serious illness, and the possibility of severe obstetric outcomes highlight the importance of addressing SARS-CoV-2 infection in obstetric management.

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Methods and findings

A cross-sectional study of pregnant women assisted in a high-risk maternity hospital in Brazil in 2020. All patients admitted for delivery or miscarriage care were tested for SARS-CoV-2 using polymerase chain reaction (PCR) and for immunoglobulin (I)gM, and/or IgG by immunochromatography. Clinical aspects and obstetric outcomes were analyzed. A total of 265 pregnant women were included in the study. There were 38 (14.4%) PCR positive cases during pregnancy, 12 (31.6%) on admission screening, and 71 (27.2%) patients were IgM- and/or IgG-positive. Among the participants, 86 (32.4%) had at least one positive test during pregnancy. SARS-CoV-2 positive patients had greater contact with known positive patients ($p = 0.005$). The most frequently reported symptoms were runny nose, cough, loss of smell and taste, headache, and fever. There was also a 35% rate of asymptomatic infections and a 4.6% rate of severe or critical infections. Patients exposed or infected with SARS-CoV-2 had a higher incidence of preterm delivery, cesarean section, need for resuscitation in the delivery room, Apgar score <7 at 5 min, admission to the neonatal intensive care unit, and jaundice. Newborns with at least one positive test had a significantly greater need for phototherapy after delivery ($p = 0.05$). The results showed a high rate of positive tests among newborns (37.5%), which seems to be compatible with both neonatal and perinatal infection.

Conclusions

It is important to further investigate SARS-CoV-2 infection during pregnancy, including the clinical course and the possibility of adverse outcomes with impact on maternal and fetal health, regardless of the development of symptoms. (Author)

Full URL: <https://doi.org/10.1371/journal.pone.0264901>

2024-10117

Diet and food insecurity among mothers, infants, and young children in Peru before and during COVID-19: A panel survey. Pradeilles R, Pareja R, Creed-Kanashiro HM, et al (2022), *Maternal & Child Nutrition* vol 18, no 3, July 2022, e13343

The COVID-19 pandemic may impact diet and nutrition through increased household food insecurity, lack of access to health services, and poorer quality diets. The primary aim of this study is to assess the impact of the pandemic on dietary outcomes of mothers and their infants and young children (IYC) in low-income urban areas of Peru. We conducted a panel study, with one survey pre-pandemic ($n = 244$) and one survey 9 months after the onset of COVID-19 ($n = 254$). We assessed breastfeeding and complementary feeding indicators and maternal dietary diversity in both surveys. During COVID-19, we assessed household food insecurity experience and economic impacts of the pandemic on livelihoods; receipt of financial or food assistance, and uptake of health services. Almost all respondents (98.0%) reported adverse economic impacts due to the pandemic and 46.9% of households were at risk of moderate or severe household food insecurity. The proportion of households receiving government food assistance nearly doubled between the two surveys (36.5%–59.5%). Dietary indicators, however, did not worsen in mothers or IYC. Positive changes included an increase in exclusive breastfeeding <6 months (24.2%–39.0%, $p < 0.008$) and a decrease in sweet food consumption by IYC (33.1%–18.1%, $p = 0.001$) and mothers (34.0%–14.6%, $p < 0.001$). The prevalence of sugar-sweetened beverage consumption remained high in both mothers (97%) and IYC (78%). In sum, we found dietary indicators had not significantly worsened 9 months into the COVID-19 pandemic. However, several indicators remain suboptimal and should be targeted in future interventions. (Author)

Full URL: <https://doi.org/10.1111/mcn.13343>

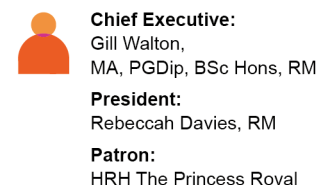
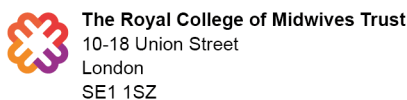
2024-10081

Adherence to COVID-19 preventive practice and associated factors among pregnant women in Gondar city, northwest Ethiopia, 2021: Community-based cross-sectional study. Temesgan WZ, Akilil MB, Yacob HS, et al (2022), *PLoS ONE* vol 17, no 3, March 2022, e0264237

Background

Coronavirus disease 2019 (COVID-19) causes more than five million deaths worldwide. Pregnant women are at high risk for infection due to the physiologic change in the immune and cardiopulmonary system and also it increases the risk of severe disease, intensive care unit admission, and receive mechanical ventilation when compared with

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non-pregnant women. It is associated with adverse maternal and neonatal outcomes. So pregnant women need to have adhered to preventive measures to prevent COVID-19 related consequences. Therefore, this study aimed to assess adherence to COVID-19 preventive practice and associated factors among pregnant women in Gondar city, northwest Ethiopia.

Methods

A community-based cross-sectional study was conducted from July 1st to 30th, 2021, in Gondar city. A cluster sampling technique was employed to select 678 pregnant women. Data were collected using a pre-tested, face-to-face interviewer-administered questionnaire. Data were entered into EPI DATA version 4.6 and exported to SPSS version 25 for analysis. Both bivariable and multivariable logistic regression analysis was fitted to identify associated factors. Adjusted odds ratio with a 95% confidence interval was used to report the association between covariates and the outcome variable.

Results

The prevalence of good adherence to COVID-19 preventive practice was 44.8% (95% CI: 41.3, 48.7). Maternal age (≤ 24 years) [AOR = 2.89, 95% CI: 1.37, 6.10], maternal education (secondary school) [AOR = 2.95, 95% CI: 1.58, 5.53] and (college and above) [AOR = 4.57, 95% CI: 2.42, 8.62], having ANC follow up [AOR = 2.95, 95% CI: 1.35, 6.46] and adequate knowledge towards COVID-19 [AOR = 1.70, 95% CI: 1.20, 2.41] were significantly associated with good adherence to COVID-19 preventive practice.

Conclusion

In this study, adherence towards COVID-19 preventive practice in pregnant women is low. Hence, it is important to strengthen women's awareness about COVID-19 through different media and health education. In addition, empowering women to attain ANC and special consideration should be given to women who had no formal education.

(Author)

Full URL: <https://doi.org/10.1371/journal.pone.0264237>

2024-09225

The percentage of CD39+ monocytes is higher in pregnant COVID-19+ patients than in nonpregnant COVID-19+ patients. C rbulo-V zquez A, Garc a-Espinosa M, Briones-Gardu o JC, et al (2022), PLoS ONE vol 17, no 7, July 2022, e0264566

Current medical guidelines consider pregnant women with COVID-19 to be a high-risk group. Since physiological gestation downregulates the immunological response to maintain "maternal-fetal tolerance", SARS-CoV-2 infection may constitute a potentially threatening condition to both the mother and the fetus. To establish the immune profile in pregnant COVID-19+ patients, a cross-sectional study was conducted. Pregnant women with COVID-19 (P-COVID-19+; n = 15) were analyzed and compared with nonpregnant women with COVID-19 (NP-COVID-19+; n = 15) or those with physiological pregnancy (P-COVID-19-; n = 13). Serological cytokine and chemokine concentrations, leucocyte immunophenotypes, and mononuclear leucocyte responses to polyclonal stimuli were analyzed in all groups. Higher concentrations of serological TNF- α , IL-6, MIP1b and IL-4 were observed within the P-COVID-19+ group, while cytokines and chemokines secreted by peripheral leucocytes in response to LPS, IL-6 or PMA-ionomycin were similar among the groups. Immunophenotype analysis showed a lower percentage of HLA-DR+ monocytes in P-COVID-19+ than in P-COVID-19- and a higher percentage of CD39+ monocytes in P-COVID-19+ than in NP-COVID-19+. After whole blood polyclonal stimulation, similar percentages of T cells and TNF+ monocytes between groups were observed. Our results suggest that P-COVID-19+ elicits a strong inflammatory response similar to NP-COVID-19+ but also displays an anti-inflammatory response that controls the ATP/adenosine balance and prevents hyperinflammatory damage in COVID-19. (Author)

Full URL: <https://doi.org/10.1371/journal.pone.0264566>

2024-09220

Placental vascular remodeling in pregnant women with COVID-19. Gychka SG, Brelidze TI, Kuchyn IL, et al (2022), PLoS ONE

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Severe acute respiratory syndrome coronavirus 2 has been causing the pandemic of coronavirus disease 2019 (COVID-19) that has so far resulted in over 450 million infections and six million deaths. This respiratory virus uses angiotensin-converting enzyme 2 as a receptor to enter host cells and affects various tissues in addition to the lungs. The present study reports that the placental arteries of women who gave birth to live full-term newborns while developing COVID-19 during pregnancy exhibit severe vascular wall thickening and the occlusion of the vascular lumen. A morphometric analysis of the placental arteries stained with hematoxylin and eosin suggests a 2-fold increase in wall thickness and a 5-fold decrease in the lumen area. Placental vascular remodeling was found to occur in all of SARS-CoV-2-positive mothers as defined by RT-PCR. Immunohistochemistry with α -smooth muscle actin and the Kv11.1 channel as well as Masson's trichrome staining showed that such placental vascular remodeling in COVID-19 is associated with smooth muscle proliferation and fibrosis. Placental vascular remodeling may represent a response mechanism to the clinical problems associated with childbirth in COVID-19 patients. (Author)

Full URL: <https://doi.org/10.1371/journal.pone.0268591>

2024-09203

Pregnancy outcomes after SARS-CoV-2 infection by trimester: A large, population-based cohort study. Fallach N, Segal Y, Agassy J, et al (2022), PLoS ONE vol 17, no 7, July 2022, e0270893

Objectives

Data regarding women infected with SARS-CoV-2 during early trimesters are scarce. We aimed to assess preterm birth (PTB) and small-for-gestational-age (SGA) rates in a large and unselected cohort by trimester at infection and overall.

Design

A retrospective cohort study including all women with a positive SARS-CoV-2 RT-PCR test during a non-ectopic singleton pregnancy between February 21st 2020 and July 2nd 2021 (N = 2753). Each infected woman was matched to a non-infected pregnant woman by age, last menstruation date, sector, and socioeconomic status.

Methods

Logistic regression was conducted to assess the risks of PTB and SGA including an interaction between group and trimester of infection. Multivariable models included underlying diseases, previous abortions and null parity. Subgroup analyses were conducted on symptomatic infected women and matched non-infected women.

Results

A total of 2753 /2789 (98.7%) eligible women that were infected during pregnancy could be matched, among them, 17.4% and 48.4% were infected during the first and third trimesters, respectively. While first and second trimester infections were not associated with PTB ($p > 0.8$), third trimester infections and in particular after 34 weeks of gestation had a greater risk of PTB with adjusted ORs of 2.76 (95% CI 1.63–4.67) and 7.10 (95% CI 2.44–20.61), respectively. PTB risk was further heightened in symptomatic third trimester infections (OR = 4.28, 95% CI 1.94–9.25). SGA risk was comparable between study groups across all trimesters of infection. Pregnancy loss incidence was similar in both groups (adjusted OR = 1.16; 95% CI 0.90–1.50).

Conclusion

SARS-CoV-2 infection was associated with increased risk of PTB only among women infected during late pregnancy, particularly among symptomatic women. (Author)

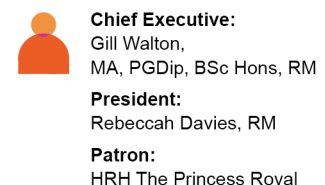
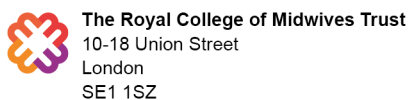
Full URL: <https://doi.org/10.1371/journal.pone.0270893>

2024-08040

The Influence of Nutritional Supplementation for Iron Deficiency Anemia on Pregnancies Associated with SARS-CoV-2 Infection. Uta M, Neamtu R, Bernad E, et al (2022), Nutrients vol 14, no 4, February 2022, p 836

Anemia is a very common occurrence during pregnancy, with important variations during each trimester. Anemia was

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also considered as a risk factor for severity and negative outcomes in patients with SARS-CoV-2 infection. As the COVID-19 pandemic poses a significant threat for pregnant women in terms of infection risk and access to care, we developed a study to determine the impact of nutritional supplementation for iron deficiency anemia in correlation with the status of SARS-CoV-2 infection. In a case-control design, we identified 446 pregnancies that matched our inclusion criteria from the hospital database. The cases and controls were stratified by SARS-CoV-2 infection history to observe the association between exposure and outcomes in both the mother and the newborn. A total of 95 pregnant women were diagnosed with COVID-19, having a significantly higher proportion of iron deficiency anemia. Low birth weight, prematurity, and lower APGAR scores were statistically more often occurring in the COVID-19 group. Birth weight showed a wide variation by nutritional supplementation during pregnancy. A daily combination of iron and folate was the optimal choice to normalize the weight at birth. The complete blood count and laboratory studies for iron deficiency showed significantly decreased levels in association with SARS-CoV-2 exposure. Puerperal infection, emergency c-section, and small for gestational age were strongly associated with anemia in patients with COVID-19. It is imperative to screen for iron and folate deficiency in pregnancies at risk for complications, and it is recommended to supplement the nutritional intake of these two to promote the normal development and growth of the newborn and avoid multiple complications during pregnancy in the COVID-19 pandemic setting. (Author)

Full URL: <https://doi.org/10.3390/nu14040836>

2024-05990

Mechanical ventilation and prone positioning in pregnant patients with severe COVID-19 pneumonia: experience at a quaternary referral center. Wong MJ, Bharadwaj S, Lankford AS, et al (2022), *International Journal of Obstetric Anesthesia* vol 49, February 2022, 103236

Background: We present the care of 17 consecutive pregnant patients who required mechanical ventilation for Coronavirus Disease 2019 (COVID-19) pneumonia at a quaternary referral center in the United States. We retrospectively describe the management of these patients, maternal and fetal outcomes, as well as the feasibility of prone positioning and delivery.

Methods: Between March 2020 and June 2021, all pregnant and postpartum patients who were mechanically ventilated for COVID-19 pneumonia were identified. Details of their management including prone positioning, maternal and neonatal outcomes, and complications were noted.

Results: Seventeen pregnant patients required mechanical ventilation for COVID-19. Thirteen patients received prone positioning, with a total of 49 prone sessions. One patient required extracorporeal membrane oxygenation. All patients in this series survived until at least discharge. Nine patients delivered while mechanically ventilated, and all neonates survived, subsequently testing negative for SARS-CoV-2. There was one spontaneous abortion. Four emergent cesarean deliveries were prompted by refractory maternal hypoxemia or non-reassuring fetal heart rate after maternal intubation.

Conclusions: Overall, maternal and neonatal survival were favorable even in the setting of severe COVID-19 pneumonia requiring mechanical ventilation. Prone positioning was well tolerated although the impact of prone positioning or fetal delivery on maternal oxygenation and ventilation are unclear.

Keywords: COVID-19; Critical illness; Mechanical ventilation; Obstetric anesthesia.

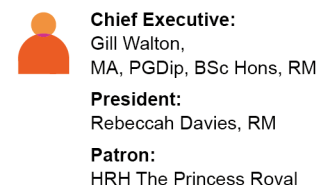
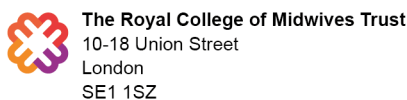
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2024-01572

Correlation between Pregnancy Outcome and Placental Pathology in COVID-19 Pregnant Women. Al-Rawaf SA, Mousa ET, Kareem NM (2022), *Infectious Diseases in Obstetrics and Gynecology* vol 2022, 21 August 2022, 8061112

Background: Vertical transmission of several viruses during pregnancy has been shown to cause adverse fetal

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outcomes. The question about the possibility of a similar outcome in association with SARS-CoV-2 has been raised in recently published articles. Indeed, the rate of transmission through the placenta to the fetus reported in women with COVID-19 has been shown to form a minority. The aim of this study was to explore the possible histopathological changes in the placenta of pregnant women with COVID-19 after delivery and those changes in the umbilical cord.

Methods: A case-control study including a total of 50 full-term pregnant women with COVID-19 and 60 control pregnant females. Histopathological evaluation of placental tissues and umbilical cords were reported.

Results: The main findings in the umbilical cord were increased thickness of vessels, thrombus formation, endothelins, and narrow lumen; except for the increased thickness of blood vessels, these findings were more frequently seen in women with COVID-19, in comparison with control women in a significant manner ($p < 0.05$). Increased thickness of blood vessels was more significantly observed in the control group compared to the COVID-19 group ($p < 0.01$). Findings of the placenta included avascular villi, fibrin, thrombosis, and meconium macrophage in various combinations. Except for fibrin as the sole findings, all other findings including combinations were more frequently encountered in the study group in comparison to the control group ($p < 0.05$).

Conclusion: Pregnant women with COVID-19 have significant pathological alterations in the placenta and umbilical cord. These findings reflect the capability of SARS-CoV-2 in causing immunological reactions to the placenta, either directly or indirectly, and these pathologies may be linked to the higher rate of adverse neonatal outcomes and maternal admission to the intensive care unit.

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Full URL: <https://doi.org/10.1155/2022/8061112>

2023-12825

Rising trends in Caesarean section in 6 Egyptian governorates. Wahdan M, Hakim S, El Gaafary M, et al (2022), Eastern Mediterranean Health Journal vol 28, no 5, May 2022, pp 336-344

Background: Caesarean section (CS) is a life-saving operation when vaginal delivery is risky to the mother or baby. However, if not medically indicated or performed under suboptimal conditions, it can be harmful and resource-intensive.

Aims: To estimate the prevalence of CS in 6 Egyptian governorates and identify possible risk factors (including demographic, social and healthcare services factors) stratified according to geographical areas.


Methods: We used secondary data collected from a large survey to investigate the sociodemographic and health indicators of 6 purposefully selected Egyptian governorates with suboptimal health indicators: 3 from Upper Egypt (Sohag, Assiut and Menia) and 3 from Lower Egypt (Sharkia, Beheira and Ismailia). The survey data were gathered using an interview questionnaire that targeted household members.

Results: The CS rate was estimated at 55.1% for the 3 years preceding the study, and the highest rate was 67.8% in Behira and the lowest was 49.0% in Assiut. In most governorates, the CS rate was higher in rural than in urban areas, but the difference was not significant. High CS rates were significantly related to higher social class and lower number of children (≤ 3).


Conclusion: In the governorates investigated, CS was performed more often, with higher rates than those reported in the 2015 Egypt Health Issue Survey. The adoption of protocols for elective CS should be enforced with a more multisectoral effort. Pregnant women should be well informed of the risks associated with CS and its medical indications. (Author)

Full URL: <https://doi.org/10.26719/emhj.22.012>

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2023-12823

Indirect effects of COVID-19 pandemic on reproductive, maternal, newborn and child health services in Pakistan.

Emmanuel F, Ahmad A, Reza T, et al (2022), Eastern Mediterranean Health Journal vol 28, no 3, March 2022, pp 258–265

Background: COVID-19 is having many impacts on health, economy and social life; some due to the indirect effects of closure of health facilities to curb the spread. Closures were implemented in Pakistan from March 2020, affecting provision of reproductive, maternal, newborn and child health (RMNCH) services.

Aims: To appraise the effects of containment and lockdown policies on RMNCH service utilization in order to develop an early response to avoid the catastrophic impact of COVID-19 on RMNCH in Pakistan.

Methods: Routine monitoring data were analysed for indicators utilization of RMNCH care. The analysis was based on Period 1 (January–May 2020, first wave of COVID-19); Period 2 (June–September 2020, declining number of cases of COVID-19); and Period 3 (October–December 2020, second wave of COVID-19). We also compared data from May and December 2020 with corresponding months in 2019, to ascertain whether changes were due to COVID-19.

Results: Reduced utilization was noted for all RMNCH indicators during Periods 1 and 3. There was a greater decline in service utilization during the first wave, and the highest reduction (~82%) was among children aged < 5 years, who were treated for pneumonia. The number of caesarean sections dropped by 57%, followed by institutional deliveries and first postnatal visit (37% each). Service utilization increased from June to September, but the second wave of COVID-19 led to another decrease.

Conclusion: To reinstate routine services, priority actions and key areas include continued provision of family planning services along with uninterrupted immunization campaigns and routine maternal and child services. (Author)

Full URL: <https://doi.org/10.26719/emhj.22.011>

2023-12402

Women's experiences with being pregnant and becoming a new mother during the COVID-19 pandemic.

Vermeulen J, Bilsen J, Buyl R, et al (2022), Sexual & Reproductive Healthcare vol 32, June 2022, 100728

Objective

During the COVID-19 pandemic a national quarantine was imposed in Belgium, which led to changes in the maternity care provision. Despite emerging literature, it remains unclear how pregnant women and women who have recently given birth experienced this period. With this study we aim to explore these women's experiences during the COVID-19 pandemic.

Methods

This qualitative study is a part of a large longitudinal study on women's health-related quality of life (HRQoL), during the COVID-19 pandemic. An open-ended question, in an online survey, asking women about their experiences during the perinatal period was analysed using a thematic analysis.

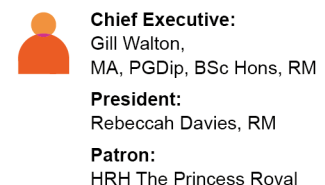
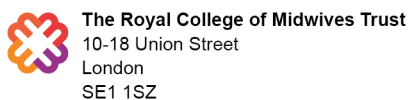
Results

Of the 1007 women who participated in the HRQoL-study in June 2020, 556 (55%) women answered the open question. In general, we identified a multiplicity of mixed and interconnected feelings. Many women reported negative feelings; nevertheless, the pandemic also had some positive aspects for respondents. Six overarching themes were identified: fear of contamination, feeling isolated and unsupported, not able to share experiences, disrupted care, feeling unprepared and experience a peaceful period.

Conclusion

Although perinatal healthcare professionals did their utmost to provide the necessary care, being pregnant or being a new mother during this pandemic was challenging at times. However, this period was also experienced as a peaceful

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period with lot of opportunities to rest. Some of the changes such as telework and restricted visiting policies were experienced positively by many. Lessons learned can support perinatal healthcare professionals and policy makers in the organisation of maternity care in the post-pandemic era. (Author)

2023-12172

Single-cell immunophenotyping of the fetal immune response to maternal SARS-CoV-2 infection in late gestation.

Matute JD, Finander B, Pepin D, et al (2022), *Pediatric Research* vol 91, no 5, April 2022, pp 1090-1098

Background

During the COVID-19 pandemic, thousands of pregnant women have been infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The implications of maternal SARS-CoV-2 infection on fetal and childhood well-being need to be characterized. We aimed to characterize the fetal immune response to maternal SARS-CoV-2 infection.

Methods

We performed single-cell RNA-sequencing and T cell receptor sequencing on cord blood mononuclear cells (CBMCs) from newborns of mothers infected with SARS-CoV-2 in the third trimester (cases) or without SARS-CoV-2 infection (controls).

Results

We identified widespread gene expression changes in CBMCs from cases, including upregulation of interferon-stimulated genes and major histocompatibility complex genes in CD14+ monocytes, transcriptional changes suggestive of activation of plasmacytoid dendritic cells, and activation and exhaustion of natural killer cells. Lastly, we observed fetal T cell clonal expansion in cases compared to controls.

Conclusions

As none of the infants were infected with SARS-CoV-2, our results suggest that maternal SARS-CoV-2 infection might modulate the fetal immune system in the absence of vertical transmission. (Author)

2023-11156

“It changed the atmosphere surrounding the baby I did have”: Making sense of reproduction during the COVID-19 pandemic. Wright KQ (2022), *Journal of Marriage and Family* vol 84, no 4, August 2022, pp 1105-1128

Objective

This study examines the schemas that women employed during the COVID-19 pandemic to make sense of their reproductive desires.

Background

Existing research on reproduction during epidemics suggests that there are variable population responses to periods of long-term social uncertainty. However, less is known about how individuals make sense of maintaining or adapting their reproductive desires during periods of social upheaval.

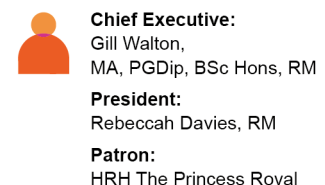
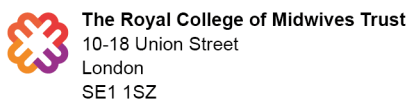
Method

Twenty-nine women aged 25–35 from a mid-sized Midwestern county in the United States were recruited and interviewed about their experiences during the first 8 months of the COVID-19 pandemic. They were asked about their daily lived experiences and their reproductive desires during in-depth interviews. These interviews were transcribed and analyzed using thematic coding.

Results

Participants used three normative schemas to describe their reproductive desires during the COVID-19 pandemic. Heteronormative schemas were used by many participants to articulate their commitment to a heteronormative

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aged-staged timeline of life events. Schemas of social support around being pregnant and giving birth were used by participants, primarily those who were currently or recently pregnant, to express grief and loss over the relational experience of having a new baby. Medicalized schemas were expressed by most participants to describe feelings of fear and risk at real or imagined encounters with medical institutions.

Conclusion

The schemas that participants used to make sense of their reproductive desires demonstrate how sense-making during a profound event that affects everyday realities allows participants to (re)articulate commitments to existing narratives that reinforce heterosexual, social, and medicalized hierarchies in reproduction. (Author)

Full URL: <https://doi.org/10.1111/jomf.12851>

2023-11009

Pregnancy during the COVID-19 pandemic: a qualitative examination of ways of coping. Reynolds KA, Pankratz L, Cameron EE, et al (2022), Archives of Women's Mental Health vol 25, no 6, December 2022, pp 1137-1148

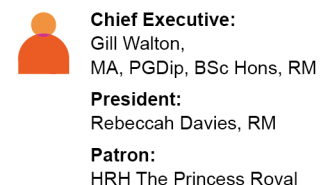
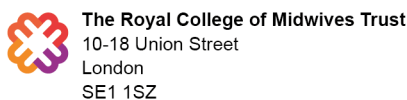
The COVID-19 pandemic and related public health restrictions have impacted the mental health and coping strategies of many population groups, including people who are pregnant. Our study sought to explore the ways that pregnant people described coping with stressors associated with the pandemic. N = 5879 pregnant individuals completed the pan-Canadian Pregnancy During the COVID-19 Pandemic Survey between April and December 2020. We used descriptive statistics to quantify sociodemographic characteristics and thematic analysis (Braun & Clarke, 2006, 2019) to analyze n = 3316 open-ended text responses to the question "Can you tell us what things you are doing to cope with the COVID-19 pandemic?" The average age of participants was 32 years (SD = 4.4), with the majority identifying as White (83.6%), female (99.7%), married (61.5%), having completed post-secondary education (90.0%), and working full-time (75.4%). We categorized participant responses into two overarching thematic dimensions: (1) ways of coping and (2) coping challenges. Ways of coping included the following main themes: (1) taking care of oneself, (2) connecting socially, (3) engaging in pandemic-specific coping strategies, (4) keeping busy, (5) taking care of others, (6) creating a sense of normalcy, (7) changing perspectives, and (8) practicing spirituality. Coping challenges included the following: (1) the perception of coping poorly, (2) loss of coping methods, (3) managing frontline or essential work, and (4) worries about the future. Findings highlight important implications for targeted prenatal supports delivered remotely, including opportunities for social support, prenatal care, and mental health strategies. (Author)

2023-11006

Association between SARS-CoV-2 infection during pregnancy and postpartum depressive and anxiety symptoms: finding from the International Registry of Coronavirus Exposure in Pregnancy (IRCEP) study. Kim S, Hernández-Díaz S, Zhu Y, et al (2022), Archives of Women's Mental Health vol 25, no 6, December 2022, pp 1105-1118

While there has been concern over the perinatal mental health implications of the COVID-19 outbreak, evidence on the risk of postpartum depression and anxiety following SARS-CoV-2 infection is limited. We studied this question using the International Registry of Coronavirus Exposure in Pregnancy, which included both a prospective and retrospective cohort. Study participants were required to have been tested for SARS-CoV-2 between the date of last menstrual period and delivery. The exposure of interest was SARS-CoV-2 infection during pregnancy, as well as COVID-19 severity (severe, moderate, mild, and asymptomatic). The outcome was postpartum depression and anxiety symptoms, assessed by the 4-item Patient Health Questionnaire. The final analytic cohort consisted of 3819 participants (COVID-19 positive: 771; COVID-19 negative: 3048). After adjusting for confounding by socio-demographics, prior obstetric and maternal health comorbidities, mothers with severe COVID-19 had an increased risk of depressive (aRR: 1.72; 95%CI: 1.18–2.52) and anxiety (aRR: 1.40; 0.98–2.00) symptoms. The strength of the association was attenuated for women with moderate COVID-19 (aRR = 1.12; 0.86–1.44 for depressive symptoms; aRR = 1.18; 0.96–1.44 for anxiety symptoms). No increased risk was observed for mild or asymptomatic illness. The findings can inform targeted interventions to minimize the risk of adverse COVID-19-related mental health outcomes for pregnant women. (Author)

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2023-10177

Health and wellbeing of the nursing and midwifery workforce in Wales during the COVID-19 pandemic. Gray BJ, Kyle RG, Davies AR (2022), Cardiff: Public Health Wales 2022. 30 pages

Public Health Wales have played a key role in understanding the health and wellbeing of the nursing and midwifery workforce. This second report building on the previously published Towards a Healthy and Sustainable Workforce for the Future provides an overview of current and emerging health and wellbeing challenges of working during the COVID-19 pandemic. For the first time, this new report includes the full spectrum of the workforce from student nurses and midwives to our senior colleagues. These insights will help shape our national strategy and organisational policies to ensure we have a sustainable, able, and well workforce for the future. This report shows that supporting staff health and wellbeing should remain at the heart of our plans to attract, value and retain our talented and dedicated health and care workforce in Wales. We are keeping a very close eye on whether people leave the NHS due to pressures brought on by the pandemic and at the same time are supporting retention through a range of policies to enhance engagement and wellbeing to support people to remain in work. As we continue to live with the impact of the pandemic it is imperative to ensure that mechanisms are in place to provide the support our health and care workforce needs. We will continue to work closely and collaboratively with our partners across Wales to monitor the impact of the pandemic and assess the support needed. This is more important now than ever. (Author, edited)

Full URL: <https://phw.nhs.wales/publications/publications1/health-and-wellbeing-of-the-nursing-and-midwifery-workforce-in-wales-during-the-covid-19-pandemic/>

2023-09338

Breast Milk Feeding of Infants at Birth Among People With Confirmed SARS-CoV-2 Infection in Pregnancy: SET-NET, 5 States, March 29, 2020–December 31, 2020. Lewis EL, Smoots AN, Woodworth KR, et al (2022), American Journal of Public Health vol 112, supplement 8, October 2022, pp S787-S796

Objectives. To describe prevalence of breast milk feeding among people with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection during pregnancy and examine associations between breast milk feeding, timing of maternal infection before delivery, and rooming-in status during delivery hospitalization.

Methods. We performed a retrospective cohort study using data from Massachusetts, Minnesota, Nebraska, Pennsylvania, and Tennessee of whether people with confirmed SARS-CoV-2 infection during pregnancy in 2020 initiated breast milk feeding at birth.

Results. Among 11 114 (weighted number) people with SARS-CoV-2 infection in pregnancy, 86.5% (95% confidence interval [CI] = 82.4%, 87.6%) initiated breast milk feeding during birth hospitalization. People with infection within 14 days before delivery had significantly lower prevalence of breast milk feeding (adjusted prevalence ratio [APR] = 0.88; 95% CI = 0.83, 0.94) than did those with infection at least 14 days before delivery. When stratified by rooming-in status, the association between timing of infection and breast milk feeding remained only among infants who did not room in with their mother (APR = 0.77; 95% CI = 0.68, 0.88).

Conclusions. Pregnant and postpartum people with SARS-CoV-2 infection should have access to lactation support and be advised about the importance of breast milk feeding and how to safely feed their infants in the same room.

(Author)


Full URL: <https://doi.org/10.2105/AJPH.2022.307023>

2023-08678


Maternal–foetal transfer of severe acute respiratory syndrome coronavirus 2 antibodies among women with and those without HIV infection. Nunes MC, Jones S, Ditse Z, et al (2022), AIDS vol 36, no 13, November 2022, pp 1777-1782

In pregnant women, antibodies against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) spike protein cross the placenta and can be detected in cord-blood at the time of delivery. We measured SARS-CoV-2 full-length antispike IgG in blood samples collected from women living with HIV (WLWHIV) and without HIV when presenting for

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labour, and from paired cord-blood samples. Antispikes IgG was measured in maternal blood at delivery on the Luminex platform. Cord-blood samples from newborns of women with detectable antispikes IgG were analysed. The IgG geometric mean concentrations (GMCs) and the percentage of cord-blood samples with detectable antispikes IgG were compared between WLWHIV and without HIV. A total of 184 maternal and cord-blood pairs were analysed, including 47 WLWHIV and 137 without HIV. There was no difference in antispikes GMCs between WLWHIV and without HIV [157 binding antibody units (BAU)/ml vs. 187 BAU/ml; $P = 0.17$]. Cord-blood samples from newborns of WLWHIV had lower GMCs compared with those without HIV (143 vs. 205 BAU/ml; $P = 0.033$). Cord-to-maternal blood antibody ratio was 1.0 and similar between the two HIV groups. In WLWHIV, those who were 30 years old or less had lower cord-to-maternal blood antibody ratio (0.75 vs. 1.10; $P = 0.037$) and their newborns had lower cord-blood GMCs (94 vs. 194 BAU/ml; $P = 0.04$) compared with the older women. Independently of maternal HIV infection status, there was efficient transplacental transfer of antispikes antibodies. The GMCs in cord-blood from newborns of WLWHIV were lower than those in HIV-unexposed newborns. (Author)

Full URL: <https://doi.org/10.1097/QAD.0000000000003345>

2023-06597

Impact of COVID-19 infection in pregnancy and neonates: A case control study. Daclin C, Carbonnel M, Rossignol M, et al (2022), *Journal of Gynecology, Obstetrics and Human Reproduction* vol 51, no 5, May 2022, 102366

Objective

To evaluate maternal and neonatal outcomes of pregnant women who were infected by COVID-19 during pregnancy.

Study design

A Case control retrospective study was conducted in an Obstetrical Department of a west Parisian area during the first year of COVID-19 pandemic. Maternal and neonatal outcomes were compared between a group of women infected by the SARS-CoV-2 virus during pregnancy (March 2020- February 2021) and a control group of women delivering before pandemic. They were matched according to age and parity. Subgroups of SARS-CoV-2 infection occurring before vs after 37 weeks of gestations and symptomatic vs asymptomatic patients were analyzed. The rate of preterm birth, preeclampsia, placental abruption and stillbirth were compared between the year of pandemic and the year before for all deliveries.

Results

Maternal and neonatal outcomes were similar. Among the 86 pregnant women with SARS-CoV-2 infection, five were admitted to Hospital (5.8%). One was transferred in intensive care unit for respiratory distress (1.2%). All patients had favorable outcomes. Patients with symptoms had more associated comorbidities (34.5%, $n = 20/58$, with symptoms, vs 9.1%, $n = 2/22$, without symptoms, $p = 0.023$). No differences in preeclampsia, placenta abruption and stillbirth, but less preterm births (4.9%, $n = 160/3383$ vs 6.2%, $n = 209/3235$, $p = 0.04$) were observed between the year of pandemic and the year before.

Conclusion

There were few complications associated with COVID-19 infection among pregnant patients and their neonates. A low rate of associated comorbidities, a good access to healthcare services in this area and the small sample size of patients could explain these results. (Author)

2023-06586

Sickle cell disease and COVID-19 in pregnant women. Kolanska K, Vasileva R, Lionnet F, et al (2022), *Journal of Gynecology, Obstetrics and Human Reproduction* vol 51, no 3, March 2022, 102328

Introduction

The effect of coronavirus disease (COVID-19) on pregnancy outcome in women with sickle cell disease (SCD) is unknown.

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Objectives

To analyze the severity of the SARS-CoV-2 infection in pregnant women with SCD and its impact on pregnancy.

Methods

This retrospective cohort study included SCD pregnant women tested positive for COVID-19 between March 2020 – February 2021. The primary endpoint was the severity of the COVID-19 infection. Secondary endpoints were pregnancy complications and fetal outcomes.

Results

During the study period among 82 pregnant women with SCD, 8 have presented symptoms suggestive of COVID-19 and were tested positive. A common mild clinical presentation was observed in 6 women (75%), one woman was asymptomatic and one required oxygen. The latter was admitted to the Intensive Care Unit and a cesarean section was performed in the context of an ongoing vaso-occlusive crisis and acute chest syndrome together with incidental preeclampsia. Labor was induced in another patient who developed a vaso-occlusive crisis after COVID-19 remission. Fetal outcomes were good with an average Apgar score of 10 and normal umbilical blood pH at birth. Two newborns were small-for-gestational-age as expected on the ultrasound follow-up before occurrence of COVID-19.

Conclusion

COVID-19 infection in our population of pregnant women with SCD had typical presentation and rarely triggered a sickle cell crisis or other complications. Fetal outcomes were good and did not seem to be directly influenced by the SARS-CoV-2 virus. Further studies are required to confirm these observations as compared to the population of women with SCD without COVID-19 infection. (Author)

2023-06561

Psychological effect of COVID-19 pandemic among women undergoing infertility care, a French cohort – PsyCovART

Psychological effect of COVID-19: PsyCovART. Lablanche O, Salle B, Perie M-A, et al (2022), Journal of Gynecology, Obstetrics and Human Reproduction vol 51, no 1, January 2022, 102251

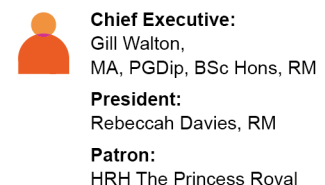
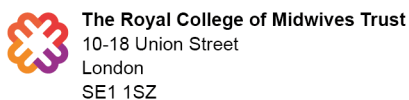
Purpose: To assess psychological state of women who experienced postponement of ART care during the first COVID-19 wave in a French public ward of reproductive medicine.

Methods: An online anonymous survey was emailed between July and August 2020 to all women whose infertility care, including the first consultation for infertility, have been delayed at the beginning of the COVID-19 pandemic. Anxiety, depression, and stress were assessed using Hospital Anxiety and Depression Scale (HADS) and Perceived Stress Scale (PSS-10). Feelings about COVID-19 outbreak, lockdown and suspension of fertility care were assessed by Multiple-Choice Questions and Visual Analog Scales.

Results: 435 women answered to the survey (response rate 34.6%). Mean levels of the HADS-A (anxiety), HADS-D (depression) and PSS10 were respectively 7.58(±3.85), 4.51(±3.48), and 27(±6.75). Prevalence of stress was 50.8% and almost half of women presented clear or suggestive anxiety symptoms (respectively 21.6% and 25.7%). Stress and anxiety rates were much higher than those expected in infertile population. Increased stress was observed in women above 35 years and those stopped 'in cycle' or during pre-treatment for in-vitro fertilization or frozen embryo transfer. Patient with history of depression or anxiety had a higher prevalence of perceived stress ($p = 0.0006$). Postponement was perceived as 'unbearable' for women experiencing stress ($p = 0.0032$). After the first wave of pandemic, pregnancy desire remained the same and 84.3% of women wanted to resume fertility care as soon as possible.

Conclusion: Stopping fertility care during the COVID-19 pandemic had a significant psychological impact on women with an increase of stress, and anxiety. Psychological counseling should always be offered especially during this difficult period. (Author)

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2023-06445

Effect of COVID-19 infection on pregnancy and the possibility of vertical transmission from infected pregnant mothers

to fetuses. AbdRabou MA (2022), African Journal of Reproductive Health vol 26, no 1, 2022, pp 120-124

Coronavirus disease 19 has been predominant in China then transmitted to different countries. The study aimed to evaluate the recent evidences from published papers of potential risks of COVID-19 contagion through gestation and if vertical transmission is possible?. We reviewed several studies on the effect of COVID-19 through pregnancy by using published articles up to June, 2021. Infection with COVID-19 during pregnancy may increase risk of pregnancy problems such as preterm birth and PPROM in few cases, but other researchers establish no COVID-19 contagion was revealed in neonates. Vertical transmission of COVID-19 is feasible, and happens in a small percentage of infected mothers, but other researchers demonstrated no vertical transmission of COVID-19. According to the narrow data, there is no enough evidence for congenital defects to fetuses of infected mother and no sure for vertical transmission. More research must be done to prove the effect of COVID-19 on the fetuses and vertical transmission. (Author)

2023-06444

Early experience on obstetric outcomes of pregnant women who tested positive for COVID-19 in Ethiopia: A case series analysis.

Tufa TH, Mohammed NM, Abubeker FA, et al (2022), African Journal of Reproductive Health vol 26, no 1, 2022, pp 115-119

Severe acute respiratory syndrome affects all groups of population including pregnant women. Currently, there are limited evidences to show an increased risk of infection or increased mortality among pregnant women than the general population. On the 13th of March 2020, Ethiopian government reported the first case of COVID-19. Since then, until the time of this research compilation, more than 40 pregnant women have been managed at Eka Kotebe General Hospital, which is the first COVID-19 designated center in the country. The aim of this case series is to do an in-depth case review of the first four cases of pregnant women who tested positive for COVID-19. Out of the four cases discussed in this series, there was one maternal death, and three out of the four newborns delivered tested positive for COVID-19. (Author)

2023-06009

Detection of Messenger RNA COVID-19 Vaccines in Human Breast Milk.

Hanna N, Heffes-Doon A, Lin X, et al (2022), JAMA Pediatrics vol 176, no 12, December 2022, pp 1268-1270

Vaccination is a cornerstone in fighting the COVID-19 pandemic. However, the initial messenger RNA (mRNA) vaccine clinical trials excluded several vulnerable groups, including young children and lactating individuals.¹ The US Food and Drug Administration deferred the decision to authorize COVID-19 mRNA vaccines for infants younger than 6 months until more data are available because of the potential priming of the children's immune responses that may alter their immunity.² The Centers for Disease Control and Prevention recommends offering the COVID-19 mRNA vaccines to breastfeeding individuals,³ although the possible passage of vaccine mRNAs in breast milk resulting in infants' exposure at younger than 6 months was not investigated. This study investigated whether the COVID-19 vaccine mRNA can be detected in the expressed breast milk (EBM) of lactating individuals receiving the vaccination within 6 months after delivery. (Author)

2023-05966

COVID-19 vaccine uptake and intention during pregnancy in Canada.

Reifferscheid L, Marfo E, Assi A, et al (2022), Canadian Journal of Public Health vol 113, no 4, August 2022, pp 547-558

Objective

To investigate COVID-19 vaccine uptake and intent among pregnant people in Canada, and determine associated factors.

Methods

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We conducted a national cross-sectional survey among pregnant people from May 28 through June 7, 2021 (n = 193). Respondents completed a questionnaire to determine COVID-19 vaccine acceptance (defined as either received or intend to receive a COVID-19 vaccine during pregnancy), factors associated with vaccine acceptance, and rationale for accepting/not accepting the vaccine.

Results

Of 193 respondents, 57.5% (n = 111) reported COVID-19 vaccine acceptance. Among those who did not accept the vaccine, concern over vaccine safety was the most commonly cited reason (90.1%, n = 73), and 81.7% (n = 67) disagreed with receiving a vaccine that had not been tested in pregnant people. Confidence in COVID-19 vaccine safety (aOR 16.72, 95% CI: 7.22, 42.39), Indigenous self-identification (aOR 11.59, 95% CI: 1.77, 117.18), and employment in an occupation at high risk for COVID-19 exposure excluding healthcare (aOR 4.76, 95% CI: 1.32, 18.60) were associated with vaccine acceptance. Perceived personal risk of COVID-19 disease was not associated with vaccine acceptance in the multivariate model.

Conclusion

Vaccine safety is a primary concern for this population. Safety information should be communicated to this population as it emerges, along with clear messaging on the benefits of vaccination, as disease risk is either poorly understood or poorly valued in this population. (Author)

Full URL: <https://link.springer.com/article/10.17269/s41997-022-00641-9>

2023-05958

COVID-19 preventive interventions for high-risk pregnant women and preschool children: a rehearsal for the baby boomers' old-age pandemic? Tremblay RE (2022), Canadian Journal of Public Health vol 113, no 1, January 2022, pp 61-66

A large research-based consensus was achieved over the past 30 years concerning the importance of prenatal and early childhood development: Preventive interventions are needed early in life because physical and psychological problems during pregnancy and early childhood often lead to serious physical, psychological, educational, and social problems throughout the life course. These problems are also transmitted to the next generation. The COVID-19 pandemic is likely to have increased the number of families who need these early-life preventive interventions. Without intensive support, children from high-risk families are likely to fail in school, to have serious physical and mental health problems, and to reproduce another generation of children with similar physical, cognitive, and mental health problems. We underline the need to: (1) assess the extent of the COVID-19 damage on pregnant women and on their spouses, as well as on the families with preschool children; (2) help service providers identify the state-of-the-art services they should implement; (3) assess the implementation of these services; and (4) help service providers maintain highly effective interventions. For the next 20 to 30 years at least, governments will be under intense pressure to invest massively in the health and care of the baby boomers. We are thus facing abysmal health care and retirement costs for the next 3 decades. Governments should be pressured to substantially invest in the support of pregnant women and preschool children, rather than in the sustained quality of life of the aging baby boomers. (Author)

Full URL: <https://link.springer.com/article/10.17269/s41997-021-00574-9>

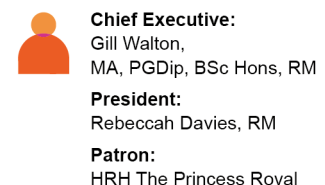
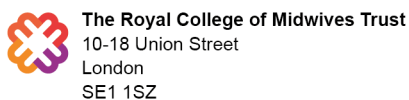
2023-05195

SARS-COV2 placentitis and pregnancy outcome: A multicentre experience during the Alpha and early Delta waves of coronavirus pandemic in England. Stenton S, McPartland J, Shukla R, et al (2022), EClinicalMedicine vol 47, May 2022, 101389

Background: Pregnant women with SARS-CoV-2 infection experience higher rates of stillbirth and preterm birth. A unique pattern of chronic histiocytic intervillitis (CHI) and/or massive perivillous fibrin deposition (MPFD) has emerged, coined as SARS-CoV-2 placentitis.

Methods: The aim of this study was to describe a cohort of placentas diagnosed with SARS-CoV-2 placentitis during October 2020-March 2021. Cases with a histological diagnosis of SARS-CoV-2 placentitis and confirmatory

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immunohistochemistry were reported. Maternal demographic data, pregnancy outcomes and placental findings were collected.

Findings: 59 mothers delivered 61 infants with SARS-CoV-2 placentitis. The gestational age ranged from 19 to 41 weeks with most cases (78.6%) being third trimester. 30 infants (49.1%) were stillborn or late miscarriages. Obese mothers had higher rates of pregnancy loss when compared with those with a BMI <30 [67% (10/15) versus 41% (14/34)]. 47/59 (79.7%) mothers had a positive SARS-CoV-2 PCR test either at the time of labour or in the months before, of which 12 (25.5%) were reported to be asymptomatic. Ten reported only CHI, two cases showed MPFD only and in 48 placentas both CHI and MPFD was described.

Interpretation: SARS-CoV2 placentitis is a distinct entity associated with increased risk of pregnancy loss, particularly in the third trimester. Women can be completely asymptomatic and still experience severe placentitis. Unlike 'classical' MPFD, placentas with SARS-CoV-2 are generally normal in size with adequate fetoplacental weight ratios. Further work should establish the significance of the timing of maternal SARS-CoV-2 infection and placentitis, the significance of SARS-CoV2 variants, and rates of vertical transmission associated with this pattern of placental inflammation.

Funding: There was not funding associated with this study.

Keywords: COVID-19; Chronic histiocytic intervillitis; Massive perivillous fibrin deposition; Placentitis; SARS-CoV2; Stillbirth.

© 2022 The Author(s). (Author)

Full URL: <https://doi.org/10.1016/j.eclinm.2022.101389>

2023-04376

A Year to Evaluate the Neonatal and Obstetric Outcome in Covid 19 Positive Pregnant Women in Abu Dhabi UAE.

Farah R, Datta R, et al (2022), Open Journal of Pediatrics vol 12, no 1, March 2022, pp. 26-32

Covid 19 epidemic has caused a lot of concern especially in the obstetric and neonatal populations. The fact that it is a new disease and the fact that there are sparse studies available have doubled our worries. Our study provides some answers. This a retrospective study carried out in Mediclinic Al-Noor hospital in Abu Dhabi. Our study revealed no adverse effects on the neonates and no vertical transmission. Given the physiologic and immune function changes in pregnancy, they might be considered at a higher risk of developing more complications, but it needs a longer duration of the study with larger sample size. Statistical analysis could not be possible in our study due to the smaller sample size, and we plan to continue the study further in the future to obtain a larger pool of data to validate the findings more accurately. The incidence of covid positive mothers might not reflect today's covid situation because we carried out the study during the lockdown and there might be an increase in the incidence after lockdown. (Author)

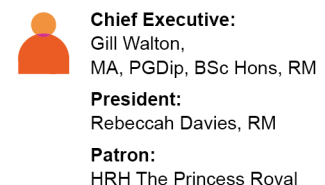
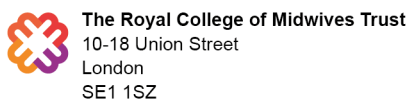
Full URL: <https://doi.org/10.4236/ojped.2022.121004>

2023-02393

A Qualitative Analysis on Sexual and Reproductive Health Needs and Issues During COVID-19 Using a Reproductive Justice Framework. de la Rocha P, Sudhinaraset M, Jones NV, et al (2022), Ethnicity and Disease vol 32, no 4, 2022, pp 357-372

The COVID-19 pandemic exacerbated existing health inequities, further exposing the challenges in meeting the sexual and reproductive health (SRH) needs, particularly for Black, Indigenous and People of Color (BIPOC). We interviewed 11 key informants through three focus groups to explore barriers and pathways to SRH care for BIPOC during COVID-19 in the United States. Reimagining reproductive health practices requires holistic practices and multisector pathways, a comprehensive reproductive justice approach. This includes interventions across the sexual and reproductive health continuum. Using a deductive-dominant approach grounded in reproductive justice values, we explore themes around SRH during COVID-19. Five themes for advancing reproductive justice were identified: "supremacy of birth"; police violence as a determinant of SR mental health; addressing quality of care outside of hospital settings; digital redlining;

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and centering joy, liberation, and humanity. (Author)

Full URL: <https://ethndis.org/archive/files/ethndis-32-357.pdf>

2023-02392

Maternal and Infant Health Inequities, Reproductive Justice and COVID Addressed in RACE Series. Ford CL, Walker V, Crear-Perry J, et al (2022), *Ethnicity and Disease* vol 32, no 4, 2022, pp 351-356

Provides an overview of the latest instalment of the Rapid Assessment of COVID Evidence (RACE) Series, with a focus on emerging threats to reproductive justice. (MB)

Full URL: <https://ethndis.org/archive/files/ethndis-32-351.pdf>

2023-02114

Exploring the acceptability and experience of receiving diabetes and pregnancy care via telehealth during the COVID-19 pandemic: a qualitative study. (2022), *BMC Pregnancy and Childbirth* vol 22, no 932, December 2022

Background

The COVID-19 pandemic has significantly impacted the delivery of diabetes in pregnancy care and general maternity care. This study aimed to explore the experiences and acceptability of telehealth use in diabetes in pregnancy care during the COVID-19 pandemic, from the perspectives of pregnant women and their clinicians. The secondary aim was to explore the experiences of pregnant women receiving general maternity care via telehealth during the COVID-19 pandemic.

Methods

In-depth qualitative semi-structured interviews were undertaken and analysed via thematic inductive approaches. The Nonadoption, Abandonment, and Challenges to the Scale-Up, Spread, and Sustainability of Health and Care Technologies Framework (NASSS) was applied.

Results

Eighteen interviews were conducted with culturally and linguistically diverse pregnant women and 4 clinicians (endocrinologists and dietitians). All interviewees were satisfied with telehealth as a positive alternative to face-to-face consultations for diabetes care during the COVID-19 pandemic. Numerous benefits of delivering diabetes care via telehealth were discussed and themes centred around greater access to care, economic benefits and improved safety. Most barriers concerned the adopters (clinicians), yet, feasible and realistic suggestions to overcome barriers were voiced. The scope for technology adaptation and ongoing embedment into routine diabetes care was described. Overall, a hybrid flexible delivery model, predominantly consisting of telephone consultations, with some face-to-face consultations for initial diabetes appointments was recommended for future care. The use of telehealth in replacement of face-to-face appointments for general maternity care was perceived as reducing care quality.

Conclusion

In this study, telehealth was viewed as acceptable to women and clinicians for diabetes in pregnancy care, supporting the ongoing delivery of a hybrid service model of telehealth and face-to-face care. These findings provide valuable information to improve diabetes in pregnancy services to meet the needs of women during the COVID-19 pandemic and beyond. (Author)

Full URL: <https://doi.org/10.1186/s12884-022-05175-z>

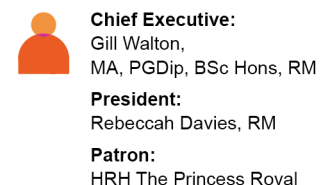
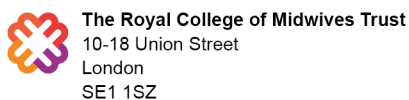
2023-02110

Antenatal care utilization during the COVID-19 pandemic: an online cross-sectional survey among Filipino women. de Guzman GS, Banal-Silao MJB (2022), *BMC Pregnancy and Childbirth* vol 22, no 929, December 2022

Background

The COVID-19 pandemic resulted in unprecedented challenges to healthcare systems worldwide, including interruption of antenatal care services. The study aimed to determine the utilization of antenatal care services of

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Filipino women during the COVID-19 pandemic.

Methods

A cross-sectional study was conducted among postpartum women using an online self-administered survey in the Philippines from January 1 to March 31, 2022. The questionnaire used to assess health-seeking behavior was validated before the survey proper. Women aged 18 to 45 years who delivered in 2021 were recruited. The participants answered a structured questionnaire to assess their access, perceptions, and utilization of antenatal care. Utilization of antenatal care was evaluated using standard measures, including the timing of initiation of antenatal care, number of subsequent visits, and place of consults. The factors affecting the adequacy of antenatal care were determined for each variable through simple logistic regression.

Results

A total of 318 women were enrolled in the study. All the respondents agreed on the necessity of antenatal care. However, only 46.37% had six or more in-person antenatal visits, with the majority attended to by midwives at community health centers. Most respondents (71.38%) initiated antenatal care during the first trimester. Almost half reported deferrals of visits mainly due to lockdown restrictions, transportation problems, and financial issues. Positive predictors of adequate antenatal care were prior pregnancies (OR 1.80, 95% CI 1.11–9.20 for 2–3 prior pregnancies; OR 3.02, 95% CI 1.45–6.29 for 4 or more prior pregnancies), live births (OR 1.67, 95% CI 1.04–2.69 for 2–3 prior live births; OR 2.46, 95% CI 1.17–5.16 for 4 or more prior live births), having living children (OR 1.74, 95% CI 1.09–2.79), spousal support (OR 1.75, 95% CI 1.01–3.03 for married women; OR 1.89, 95% CI 1.09–3.28 for women with common-law partners), history of obstetric complications (OR 2.82, 95% CI 1.33–5.97), and use of private vehicles (OR 2.65, 95% CI 1.05–6.68). Negative predictors were employment (OR 0.37, 95% CI 0.22–0.63) and medical examination prior to pregnancy (OR 0.36, 95% CI 0.23–0.58).

Conclusion

Despite an overall positive perception of the necessity of antenatal care, utilization has been inadequate in more than half of the respondents. Various individual, facility, and policy-level factors affected the utilization of services during the pandemic. There is a need to augment antenatal care services in the country by mitigating barriers to access. The public health response should strengthen collaborative efforts with primary-level healthcare to increase service provision, especially to more vulnerable populations. (Author)

Full URL: <https://doi.org/10.1186/s12884-022-05234-5>

2023-02070

Clinical-epidemiological characteristics and maternal-foetal outcomes in pregnant women hospitalised with COVID-19 in Venezuela: a retrospective study. Carrión-Nessi FS, Castro MP, Freitas-De Nobrega DC, et al (2022), BMC Pregnancy and Childbirth vol 22, no 905, December 2022

Background

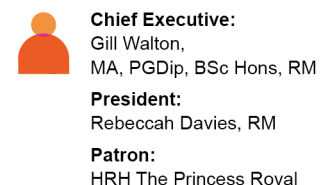
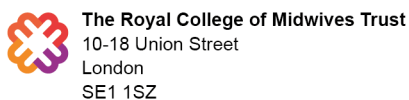
In low- and middle-income countries, pregnant women and newborns are more vulnerable to adverse outcomes from coronavirus disease 2019 (COVID-19). However, in Venezuela, there are no integrated data in a national surveillance system to identify the clinical-epidemiological characteristics and maternal-foetal outcomes of pregnant women hospitalised with COVID-19.

Methods

A retrospective study was conducted among Venezuelan pregnant women hospitalised with COVID-19 seen at the “Ruiz y Páez” University Hospital Complex and the San Cristobal Central Hospital between June 2020 and September 2021. Information was obtained from physical and digitised clinical records using a purpose-designed proforma to collect epidemiological, clinical, paraclinical, treatment, obstetric and perinatal complications, and maternal-foetal outcomes data.

Results

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A total of 80 pregnant women with confirmed severe acute respiratory syndrome coronavirus 2 infection were seen within the study period, 59 (73.8%) survived and 21 (26.2%) died. The median (interquartile range) age was 29 (23–33) years, the majority being in the third trimester of pregnancy (81.2%; n = 65). Interestingly, four (5%) pregnant women were co-infected with malaria by *Plasmodium vivax* and three (3.8%) with syphilis. The most frequent symptoms were fever (75%; n = 60), dry cough (68.8%; n = 55), dyspnoea (55%; n = 44), and headache (53.8%; n = 43). The most frequent maternal complications were anaemia (51.5%; n = 66) and hypertensive disorders of pregnancy (17.5%; n = 14). The most frequent perinatal complications were preterm delivery (39.2%; n = 20/51) and oligohydramnios (31.3%; n = 25). A total of 29 (36.3%) adverse foetal outcomes were documented, 21 stillbirth and eight abortions.

Conclusion

This is the first study to describe the clinical-epidemiological behaviour of COVID-19 in hospitalised Venezuelan pregnant women. Anaemia, hypertensive disorders of pregnancy, oligohydramnios, and low birth weight were the most frequent maternal-foetal complications in this population of pregnant women. (Author)

Full URL: <https://doi.org/10.1186/s12884-022-05253-2>

2023-02067

The impact of the COVID-19 pandemic on physical activity and sedentary behavior during pregnancy: a prospective study. Park S, Marcotte RT, Staudenmayer JW, et al (2022), BMC Pregnancy and Childbirth vol 22, no 899, December 2022

Background

Prior studies evaluating the impact of the COVID-19 pandemic on pregnancy physical activity (PA) have largely been limited to internet-based surveys not validated for use in pregnancy.

Methods

This study used data from the Pregnancy PA Questionnaire Validation study conducted from 2019–2021. A prospective cohort of 50 pregnant women completed the Pregnancy PA Questionnaire (PPAQ), validated for use in pregnancy, in early, mid, and late pregnancy and wore an ActiGraph GT3X-BT for seven days. COVID-19 impact was defined using a fixed date of onset (March 13, 2020) and a self-reported date. Multivariable linear mixed effects regression models adjusted for age, early pregnancy BMI, gestational age, and parity.

Results

Higher sedentary behavior (14.2 MET-hrs/wk, 95% CI: 2.3, 26.0) and household/caregiving PA (34.4 MET-hrs/wk, 95% CI: 8.5, 60.3 and 25.9 MET-hrs/wk, 95% CI: 0.9, 50.9) and lower locomotion (-8.0 h/wk, 95% CI: -15.7, -0.3) and occupational PA (-34.5 MET-hrs/wk, 95% CI: -61.9, -7.0 and -30.6 MET-hrs/wk, 95% CI: -51.4, -9.8) was observed in middle and late pregnancy, respectively, after COVID-19 vs. before. There was no impact on steps/day or meeting American College of Obstetricians and Gynecologists guidelines.

Conclusions

Proactive approaches for the promotion of pregnancy PA during pandemic-related restrictions are critically needed.

(Author)

Full URL: <https://doi.org/10.1186/s12884-022-05236-3>

2023-01776

Single-center serological surveillance of SARS-CoV-2 in pregnant patients presenting to labor and delivery. Boggess KA, Stringer EM, Robinson WR, et al (2022), International Journal of Gynecology & Obstetrics 23 November 2022, online

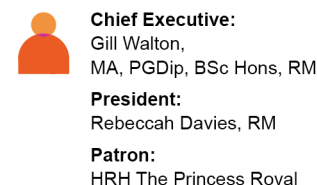
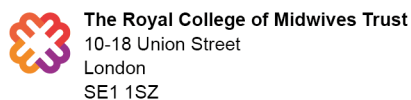
Objective

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

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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)

2023-01607

Risk factors for severe disease and impact of severity on pregnant women with COVID-19: a case-control study based on data from a nationwide survey of maternity services in Japan. Arakaki T, Hasegawa J, Sekizawa A, et al (2022), *BMJ Open* vol 12, no 12, December 2022, 068575

Objective To identify independent risk factors for severe COVID-19 in pregnant women and to evaluate the impact of disease severity on preterm birth.

Design A case-control study based on data from a nationwide questionnaire-based survey of maternity services in Japan.

Setting A questionnaire was mailed to all 2135 delivery institutions in Japan between July and August 2021. A total of 1288 institutions responded (60% of all delivery institutions in Japan). 566 facilities reported having cared for pregnant women with COVID-19, and 722 facilities reported having had no such patients.

Participants One thousand and forty-three hospitalised and non-hospitalised pregnant women diagnosed with COVID-19 between July 2020 and 30 June 2021.

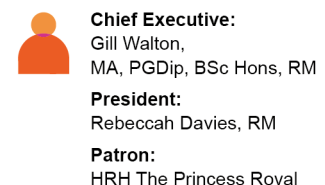
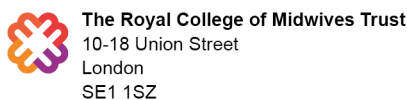
Primary and secondary outcome measures The primary outcome was progression to severe COVID-19. The secondary outcome was preterm birth due to COVID-19 infection.

Results 56 cases (5.4%) were severe, and 987 (94.6%) were non-severe. Multivariable logistic regression analysis showed that gestational age \geq 24 weeks (adjusted OR (aOR) 6.68, 95% CI 2.8 to 16.0) and maternal age \geq 32 years (aOR 2.40, 95% CI 1.3 to 4.3) were independently associated with severe cases. Using the Kaplan-Meier method, the probability of continued pregnancy at 14 days after diagnosis for severe cases was 0.57 between 24 and 31 weeks' gestation and 0.27 between 32 and 36 weeks' gestation. The probability for non-severe cases was 1.0 between 24 and 31 weeks' gestation and 0.8 between 32 and 36 weeks' gestation. Among the patients with COVID-19 in the preterm period, preterm birth due to infection was significantly more common in severe than non-severe cases (48% vs 6%, $p < 0.0001$).

Conclusions Severe COVID-19 in pregnant women was associated with gestational age \geq 24 weeks and maternal age \geq 32. The rate of preterm delivery due to the infection was significantly higher in severe COVID-19 cases. (Author)

Full URL: <http://dx.doi.org/10.1136/bmjopen-2022-068575>

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2023-01530

Casirivimab and Imdevimab for Pregnant Women Hospitalized for Severe Coronavirus Disease 2019. Riccardo BA, Gabriele S, Nunzia E, et al (2022), American Journal of Perinatology 29 December 2022, Online

Objective Our objective was to evaluate the safety and efficacy of casirivimab/imdevimab therapy in pregnant women with severe coronavirus disease 2019 (COVID-19) requiring oxygen therapy.

Study Design This was a prospective case series study aimed to evaluate the safety and efficacy of casirivimab/imdevimab therapy in unvaccinated pregnant women with severe COVID-19. Inclusion criteria were severe acute respiratory syndrome coronavirus 2 infection documented with polymerase chain reaction, pregnancy, severe COVID-19 requiring oxygen therapy, duration of symptoms of 10 days or less, and able to provide informed consent. Vaccinated women and those with mild-to-moderate disease were excluded from the study. Included patients received casirivimab and imdevimab as a single intravenous dose of 4,000/4,000 mg. Women were also treated with low molecular weight heparin, steroids, and antibiotics, if necessary. The primary outcome was maternal death. Secondary outcomes were the rate of adverse events during infusion or within 72 hours and the rate of abortion.

Results Thirteen hospitalized unvaccinated pregnant women with severe COVID-19 requiring oxygen and treated with casirivimab/imdevimab were included in the study. We observed no maternal death, and no patients required intubation or admission to the intensive care unit. No abortion or fetal loss was recorded. Nine pregnancies were still ongoing, and there were three cesarean deliveries and one vaginal delivery. Two were preterm deliveries (at 31 and 34 weeks), and two were term deliveries.

Conclusion Casirivimab/imdevimab therapy may be considered as a therapy in unvaccinated pregnant women with severe COVID-19. (Author)

2023-01500

Effect of the Mindfulness-Based Stress Reduction program on stress, anxiety, and childbirth fear in pregnant women diagnosed with COVID-19. Güneş E, Cengizhan SÖ, Karataş Okyay E, et al (2022), Complementary Therapies in Clinical Practice vol 47, May 2022, 101566

Objective

This study aims to examine the effectiveness of a live online Mindfulness-Based Stress Reduction (MBSR) program in preventing distress, anxiety and childbirth fear in pregnant women diagnosed with COVID-19.

Material and methods

Designed as a randomized-controlled trial, this study was performed with the participation of pregnant women who were diagnosed with COVID-19. The sample comprised 84 pregnant women, including 42 in the experimental group and 42 in the control group. The online MBSR program composed of eight sessions and lasting four weeks was provided to the pregnant women in the experimental group, whereas such an initiative was not provided to the control group. The data were collected via the Revised Prenatal Distress Questionnaire (NuPDQ), the Beck Anxiety Inventory (BAI), and the Childbirth Attitudes Questionnaire (CAQ).

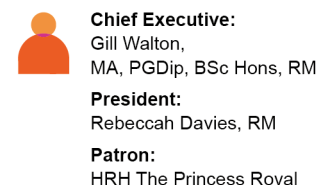
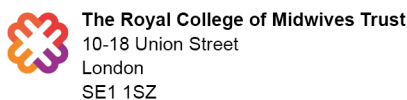
Results

After the MBSR program, the mean NuPDQ, BAI and CAQ scores of the pregnant women in the experimental group were significantly lower than the mean scores of those in the control group ($p < 0.001$).

Conclusion

The online MBSR program may be utilized to reduce the distress, anxiety and childbirth fear levels of pregnant women diagnosed with COVID-19. By using the MBSR program, health professionals might improve the psychological

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2023-01441

Does Maternal SARS-CoV-2 Infection or SARS-CoV-2 Vaccination Trigger an Inflammatory Response in the Fetus? A

Prospective Cohort Study. Alhousseini A, Turkoglu O, Sajja S, et al (2022), *Gynecologic and Obstetric Investigation* vol 87, no 3-4, 2022, pp 219-225

Objectives: SARS-CoV-2 infection triggers a significant maternal inflammatory response. There is a dearth of information regarding whether maternal SARS-CoV-2 infection at admission for delivery or SARS-CoV-2 vaccination triggers an inflammatory response in the fetus. This study aims at evaluating fetal inflammatory response to maternal SARS-CoV-2 infection or SARS-CoV-2 vaccination compared to control group. Design, Participants, Setting, and Methods: A prospective cohort study was performed with a total of 61 pregnant women who presented for delivery at a single medical center (William Beaumont Hospital, Royal Oak, MI). All mothers were tested for SARS-CoV-2 infection using polymerase chain reaction (PCR) on admission to labor and delivery unit. Three groups were evaluated: 22 pregnant with a positive SARS-CoV-2 test (case group), 23 pregnant women with a negative SARS-CoV-2 test (control group), and 16 pregnant women who had recent SARS-CoV-2 vaccination and a negative SARS-CoV-2 test (vaccine group). At delivery, cord blood was collected to determine the levels of IL-6, C-reactive protein (CRP), and SARS-CoV-2 nucleocapsid IgG and IgM antibodies. In all cases, the newborn had a negative PCR test or showed no clinical findings consistent with SARS-CoV-2 infection. Results: Mean (SD) IL-6 level was not significantly different for the three groups: case group 9.00 ± 3.340 pg/mL, control group 5.19 ± 0.759 pg/mL, and vaccine group 7.11 ± 2.468 pg/mL (p value 0.855). Pairwise comparison also revealed no statistical difference for IL-6 concentrations with p values for case versus control, case versus vaccine, and control versus vaccine = 0.57, 0.91, and 0.74, respectively. Similarly, there was no statistically significant difference in the frequency of elevated IL-6 (>11 pg/mL) between groups (p value 0.89). CRP levels across the three groups were not statistically significant different (p value 0.634). Pairwise comparison of CRP levels among the different groups was also not statistically different. SARS-CoV-2 nucleocapsid IgG was positive in 12 out of 22 cord blood samples in the case group, 2 out of 23 of the control group (indicating old resolved maternal infection), and 0 out of 16 of the vaccine group. SARS-CoV-2 nucleocapsid IgM was negative in all cord blood samples of the case group, control group, and vaccine group. Limitations: A total number of 61 mothers enrolled in the study which represents a relatively small number of patients. Most patients with positive SARS-CoV-2 PCR were mainly asymptomatic. In addition, our vaccine group received the mRNA-based vaccines (mRNA1273 and BNT162b2). We did not study fetal response to other SARS-CoV-2 vaccines. Conclusion: In our prospective cohort, neither IL-6 nor CRP indicated increased inflammation in the cord blood of newborns of SARS-CoV-2-infected or vaccinated mothers.

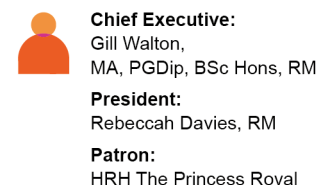
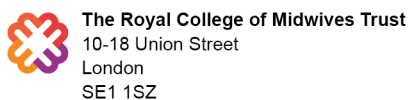
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2023-01436

A SARS-CoV-2 Delta Variant Case Manifesting as Extensive Placental Infection and Fetal Transmission. Shen W-B, Turan S, Wang B, et al (2022), *Gynecologic and Obstetric Investigation* vol 87, no 2, 2022, pp 165-172

Introduction: Studies indicate a very low rate of SARS-CoV-2 detection in the placenta or occasionally a low rate of vertical transmission in COVID-19 pregnancy. SARS-CoV-2 Delta variant has become a dominant strain over the world and possesses higher infectivity due to mutations in its spike receptor-binding motif. Case Presentation: To determine whether SARS-CoV-2 Delta variant has increased potential for placenta infection and vertical transmission, we analyzed SARS-CoV-2 infection in the placenta, umbilical cord, and fetal membrane from a case where an unvaccinated mother and her neonate were COVID-19 positive. A 35-year-old primigravida with COVID-19 underwent an emergent cesarean delivery due to placental abruption in the setting of premature rupture of membranes. The neonate tested positive for SARS-CoV-2 within the first 24 h, and then again on days of life 2, 6, 13, and 21. The placenta exhibited intervillitis, increased fibrin deposition, and syncytiotrophoblast necrosis. Sequencing of viral RNA from fixed placental tissue revealed SARS-CoV-2 B.1.167.2 (Delta) variant. Both spike protein and viral RNA were abundantly present in syncytiotrophoblasts, cytotrophoblasts, umbilical cord vascular endothelium, and fetal

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membranes. Conclusion: We report with strong probability the first SARS-CoV-2 Delta variant transplacental transmission. Placental cells exhibited extensive apoptosis, senescence, and ferroptosis after SARS-CoV-2 Delta infection.

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2023-01432

Adverse perinatal outcomes in pregnancies affected by severe COVID-19 infection. Hamidi OP, Lijewski V, Sheeder J, et al (2022), *AJOG Global Reports* vol 2, no 4, November 2022

BACKGROUND

Severe COVID-19 infection in pregnancy has been associated with an increase in adverse perinatal outcomes, although studies differ regarding which outcomes are affected. Increased characterization of obstetrical and neonatal outcomes is needed, including details on indications for preterm delivery and additional neonatal adverse outcomes.

OBJECTIVE

This study aimed to determine whether there is a higher rate of adverse perinatal outcomes with severe-to-critical COVID-19 infection compared with nonsevere COVID-19 diagnosed during pregnancy.

STUDY DESIGN

This was a retrospective observational cohort study that compared rates of adverse perinatal outcomes between patients with severe-to-critical and those with nonsevere (asymptomatic, mild, or moderate) COVID-19 infection. Patients had singleton pregnancies and a positive laboratory polymerase chain reaction result for COVID-19. Primary outcomes included hypertensive disorders of pregnancy, cesarean delivery, fetal growth restriction, preterm birth, and neonatal intensive care unit admission. Additional neonatal outcomes analyzed included need for cardiopulmonary resuscitation, low birthweight (<2500 g), 1- or 5-minute Apgar score <7, need for supplemental oxygen, need for intubation, intraventricular hemorrhage, sepsis, respiratory distress syndrome, bronchopulmonary dysplasia, blood transfusion, necrotizing enterocolitis, hypoxic-ischemic encephalopathy, birth trauma, or neonatal death. Appropriate bivariate analyses were used to compare groups. Logistic regression was used to examine primary outcomes while adjusting for confounders.

RESULTS

A total of 441 participants were identified and confirmed via detailed chart review to be pregnant with a singleton pregnancy while diagnosed with COVID-19. Of these, 44 (10%) met National Institutes of Health criteria for severe-to-critical COVID-19 infection. The median gestational age at the time of maternal COVID-19 diagnosis was 36.4 weeks (interquartile range, 29.6–38.6). Severe-to-critical COVID-19 infection had a higher risk of a composite adverse neonatal outcome (36.4% vs 21.4%; $P=.03$). There was a high incidence of hypertensive disorders of pregnancy overall (20.6%), but this outcome was not higher in the severe-to-critical vs nonsevere group. There were no maternal deaths. There was a low incidence of neonatal COVID-19 test positivity among those tested (1.8%). When adjusting for presence of heart disease and gestational age at COVID-19 diagnosis, severe-to-critical COVID-19 was strongly associated with fetal growth restriction (adjusted odds ratio, 2.73; confidence interval, 1.03–7.25) and neonatal intensive care unit admission (adjusted odds ratio, 3.50; confidence interval, 1.56–7.87). Preterm delivery was more common but was no longer significant after adjustment (adjusted odds ratio, 2.23; confidence interval, 0.99–5.05).

CONCLUSION

Severe-to-critical COVID-19 infection during pregnancy is associated with higher rates of adverse neonatal outcomes and strongly associated with neonatal intensive care unit admission and fetal growth restriction compared with nonsevere disease. There is a high rate of hypertensive disorders of pregnancy overall in all those affected by COVID-19, regardless of severity. Pregnant persons should be counseled on these risks to encourage vaccination, and those with infection during pregnancy should be monitored for fetal growth disorders. (Author)

Full URL: <https://doi.org/10.1016/j.xagr.2022.100118>

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2023-01424

Disseminated intravascular coagulation complicating mild or asymptomatic maternal COVID-19. Carpenter J, Combs CA, Kahn B, et al (2022), *AJOG Global Reports* vol 2, no 4, November 2022

BACKGROUND

Hypercoagulability frequently complicates moderate or severe COVID-19 and can result in venous thromboembolism, arterial thrombosis, or microvascular thrombosis. Disseminated intravascular coagulation, however, is uncommon.

OBJECTIVE

We sought to describe the clinical presentation and outcome in a series of pregnant patients with mild or asymptomatic COVID-19 who had disseminated intravascular coagulation.

STUDY DESIGN

This was a retrospective case series. Cases were solicited via e-mails targeted to obstetrical providers in the Mednax National Medical Group and a restricted maternal–fetal medicine Facebook page. Inclusion criteria were: hospital admission during pregnancy, positive test for SARS-CoV-2 within 2 weeks of admission, and maternal disseminated intravascular coagulation defined as ≥ 2 of the following: platelet count $\leq 100,000$ per mm³, fibrinogen ≤ 200 mg/dL, and prothrombin time ≥ 3 seconds above the upper normal limit. Exclusion criteria were severe COVID-19 requiring ventilation within an hour of diagnosis of coagulopathy or use of anticoagulants at the time of diagnosis. Maternal and newborn records were abstracted and summarized with descriptive statistics.

RESULTS

Inclusion criteria were met in 19 cases from October 2020 through December 2021. Of these, 18 had not received any COVID-19 vaccine, and 1 had unknown vaccination status. Median gestational age on hospital admission was 30 weeks (interquartile range, 29–34 weeks). The main presenting symptom or sign was decreased fetal movement (56%) or nonreassuring fetal heart rate pattern (16%). COVID-19 was asymptomatic in 79% of cases. Two of the 3 defining coagulation abnormalities were found in 89% of cases and all 3 in the remaining 11%. Aspartate aminotransferase was elevated in all cases and ≥ 2 times the upper normal limit in 69%. Only 2 cases (11%) had signs of preeclampsia other than thrombocytopenia or transaminase elevation. Delivery was performed on the day of admission in 74% and on the next day in the remaining 26%, most often by cesarean delivery (68%) under general anesthesia (62%) because of nonreassuring fetal heart rate pattern (63%). Postpartum hemorrhage occurred in 47% of cases. Blood product transfusions were given in 95% of cases, including cryoprecipitate (89% of cases), fresh/frozen plasma (79%), platelets (68%), and red cells (63%). Placental histopathology was abnormal in 82%, with common findings being histiocytic intervillitis, perivillous fibrin deposition, and infarcts or necrosis. Among the 18 singleton pregnancies and 1 twin pregnancy, there were 13 live newborns (65%) and 7 stillbirths (35%). Among liveborn neonates, 5-minute Apgar score was ≤ 5 in 54%, and among cases with umbilical cord blood gases, pH ≤ 7.1 was found in 78% and base deficit ≥ 10 mEq/L in 75%. Positive COVID-19 tests were found in 62% of liveborn infants.

CONCLUSION

Clinicians should be alert to the possibility of disseminated intravascular coagulation when a COVID-19 patient complains of decreased fetal movement in the early third trimester. If time allows, we recommend evaluation of coagulation studies and ordering of blood products for massive transfusion protocols before cesarean delivery if fetal tracing is nonreassuring. (Author)

Full URL: <https://doi.org/10.1016/j.xagr.2022.100110>

2023-01414

Postpartum readmissions for hypertensive disorders in pregnancy during the COVID-19 pandemic. Griffin MM, Black M, Deeb J, et al (2022), *AJOG Global Reports* vol 2, no 4, November 2022

BACKGROUND

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Hypertensive disorders in pregnancy are one of the most common causes of readmission in the postpartum period. Because of the COVID-19 pandemic, early hospital discharge was encouraged for patients who were medically stable, because hospitalization rates among SARS-CoV-2–infected patients steadily increased in 2020. The impact of an early discharge policy on postpartum readmission rates among patients with hypertensive disorders in pregnancy is unknown.

OBJECTIVE

This study aimed to compare the postpartum readmission rates of patients with hypertensive disorders in pregnancy before and after implementation of an early discharge policy owing to the COVID-19 pandemic.

STUDY DESIGN

This was a quality improvement, retrospective cohort study of postpartum patients with antenatal hypertensive disorders in pregnancy who delivered and were readmitted because of hypertensive disorders in pregnancy at the New York University Langone Health medical center from March 1, 2019 to February 29, 2020 (control cohort) and from April 1, 2020 to March 31, 2021 (COVID-19 cohort). During the pandemic, our institution introduced an early discharge policy for all postpartum patients to be discharged no later than 2 days postpartum during the delivery admission if deemed medically appropriate. The reduction in postpartum length of stay was accompanied by the continuation of patient education, home blood pressure monitoring, and outpatient follow-up. The primary outcome was the comparison of the readmission rates for patients with postpartum hypertensive disorders in pregnancy. Data were analyzed using Fisher's Exact tests, chi-square tests, and Wilcoxon rank-sum tests with significance defined as $P < .05$.

RESULTS

There was no statistical difference in the readmission rates for patients with postpartum hypertensive disorders in pregnancy before vs after implementation of an early discharge policy (1.08% for the control cohort vs 0.59% for the COVID-19 cohort). The demographics in each group were similar, as were the median times to readmission (5.0 days; interquartile range, 4.0–6.0 days vs 6.0 days; interquartile range, 5.0–6.0 days; $P = .13$) and the median readmission length of stay (3.0 days; interquartile range, 2.0–4.0 days vs 3.0 days; interquartile range, 2.0–4.0 days; $P = .45$). There was 1 intensive care unit readmission in the COVID-19 cohort and none in the control cohort ($P = .35$). There were no severe maternal morbidities or maternal deaths.

CONCLUSION

These findings suggest that policies calling for a reduced postpartum length of stay, which includes patients with hypertensive disorders in pregnancy, can be implemented without impacting the hospital readmission rate for patients with hypertensive disorders in pregnancy. Continuation of patient education and outpatient surveillance during the pandemic was instrumental for the outpatient postpartum management of the study cohort. Further investigation into best practices to support early discharges is warranted. (Author)

Full URL: <https://doi.org/10.1016/j.xagr.2022.100108>

2023-01199

Essential maternal health service disruptions in Ethiopia during COVID 19 pandemic: a systematic review. Zewdie A, Mose A, Yimer AS, et al (2022), BMC Women's Health vol 22, no 496, December 2022

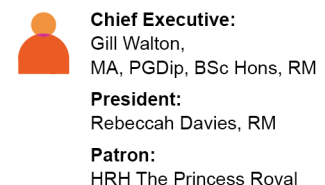
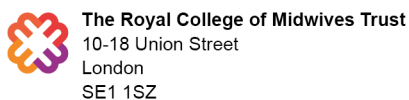
Introduction

COVID 19 pandemic has challenged the resilience of the most effective health systems in the world. The Ethiopian Ministry of health tried to ensure the continuation of essential maternal health services during the pandemic. Despite several individual studies conducted on the impact of COVID 19 on maternal health services, no evidence can summarize the extent of impact as a nation and which essential maternal health service is most affected.

Method

A systematic review was conducted to summarize the extent of disruption of essential maternal health services and identify the most affected service in the era of the COVID pandemic in Ethiopia. Preferred Reporting Items for

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Systematic Review and Meta-analysis guidelines were followed. Comprehensive literature was searched using international databases PubMed, Google scholar, and African Online Journal to retrieve related articles. Descriptive analysis was made to answer the review objective.

Result

Overall, 498 articles were retrieved using our search strategy and finally 8 articles were included in the review. We found, ANC (26.35%), skilled birth attendance (23.46%), PNC (30%), family planning (14%), and abortion care (23.7%) maximum disruption of service utilization due to the pandemic. PNC service was the most significantly affected service unit followed by the ANC unit.

Conclusion

Essential maternal health services have been significantly disrupted due to COVID 19 pandemic in Ethiopia. It is expected from all stakeholders to prioritize safe and accessible maternity care during the pandemic and the aftermath and take lesson to reduce maternal and infant morbidity and mortality. (Author)

Full URL: <https://doi.org/10.1186/s12905-022-02091-4>

2023-00999

SARS-CoV-2 infection during pregnancy and preterm birth in Massachusetts from March 2020 through March 2021.

Darling AM, Shephard H, Nestoridi E, et al (2023), Paediatric and Perinatal Epidemiology vol 37, no 2, February 2023, pp 93-103

Background

SARS-CoV-2 infection during pregnancy has been linked to preterm birth, but this association is not well understood.

Objectives

To examine the association between SARS-CoV-2 infection and spontaneous and provider-initiated preterm birth (PTB), and how timing of infection, and race/ethnicity as a marker of structural inequality, may modify this association.

Methods

We conducted a retrospective cohort study among pregnant people who delivered singleton, liveborn infants (22–44 weeks gestation) from 1 March 2020 to 31 March 2021 (n = 68,288). We used Cox proportional hazards models to compare the hazard of PTB between pregnant people with and without laboratory-confirmed SARS-CoV-2 infection during pregnancy. We evaluated this association according to the trimester of infection, timing from infection to birth, and timing of PTB. We also examined the joint associations of SARS-CoV-2 infection and race/ethnicity with PTB using the relative excess risk due to interaction (RERI).

Results

Positive SARS-CoV-2 tests were identified for 2195 pregnant people (3.2%). The prevalence of PTB was 7.2% (3.8% spontaneous, 3.6% provider-initiated). SARS-CoV-2 infection during pregnancy was associated with an increased risk of PTB overall (adjusted hazard ratio [HR] 1.53, 95% confidence interval [CI] 1.34, 1.74), and provider-initiated PTB (HR 1.79, 95% CI 1.50, 2.12) but not spontaneous PTB (HR 1.09, 95% CI 0.89, 1.36). Second trimester infections were associated with an increased risk of provider-initiated PTB, and third trimester infections were associated with an increased risk of both PTB subtypes. A joint inverse association between White non-Hispanic race/ethnicity and SARS-CoV-2 infection and spontaneous PTB (HR 0.56, 95% CI 0.34, 0.94; RERI -0.6, 95% CI -1.0, -0.2) was also observed.

Conclusions

SARS-CoV-2 infections were primarily associated with an increased risk for provider-initiated PTB in this study. These findings highlight the importance of promoting infection-prevention strategies among pregnant people. (Author)

2023-00989

'Pregnant women voice their concerns and delivery method preferences during the COVID-19 pandemic in Turkey'.

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Objective: To evaluate pregnant women's voice their concerns and delivery method preferences during the COVID-19 pandemic in Turkey.

Methods: A cross-sectional study is survey based using an online survey platform. Three hundred pregnant women were included between 16 May and 12 June 2020 in Turkey. Sociodemographic features, obstetric features, concerns about COVID-19, delivery method preferences, and Brief Measure of Worry Severity were evaluated.

Results: It was determined that the concerns of pregnant women about the pandemic were moderate (12.73 ± 6.838) and did not alter their delivery method preferences. However, the concerns of the pregnant women who planned to perform their delivery by caesarean section before COVID-19 and whose delivery method preferences changed during the pandemic process were higher ($p < 0.05$). Additionally, during the COVID-19 period, pregnant women often harbour concerns such as 'not knowing how it would affect my baby if I have to take medications for COVID-19 (90.3%)' 'getting infected by COVID-19 during my pregnancy (89.7%)' 'not having a healthy pregnancy until birth (89%)'.

Conclusions: Delivery method preferences of pregnant women did not change in the COVID-19 pandemic. On the other hand, COVID-19 pandemic is impacting on the pregnant women experiencing moderate concerns about their pregnancy, delivery, postpartum period, and their baby.(Author)

2023-00986

COVID-19: what about pregnant women during first lockdown in Italy?. Ionio C, Gallese M, Fenaroli V, et al (2022), Journal of Reproductive and Infant Psychology vol 40, no 6, 2022, pp 577-589

Objective: Lombardy was the most affected Italian region by COVID-19. To limit the spread of infection, the government issued a national social lockdown. The obstetrical-gynaecological emergencies and essential services were guaranteed to protect pregnant women's health, and a return to a medicalised childbirth was necessary. This situation could had amplified risk factors on the psychological wellbeing of mothers-to-be. Indeed, the last trimester of pregnancy is a period of increased vulnerability itself.

Method: For better support women who experience pregnancy during social lockdown, we explored the impact of COVID-19 on psychic wellbeing of two samples of pregnant women (40 living in Lombardy and 35 in Tuscany).

Results: T-test and correlations analyses revealed that women living in the Lombardy had a higher perception of the centrality of COVID-19. Further, women that considered the pandemic as a significant event, experienced a higher perinatal depressive symptom. Those symptoms also arose in women who presented a higher number of intrusion and hyperarousal symptoms and a lower ability to plan.

Conclusion: Pregnant women should be closely monitored and supported, especially those who live in high-risk areas, such as Lombardy Region. The target intervention could be focused on improving resilience to reduce depressive symptomatology.(Author)

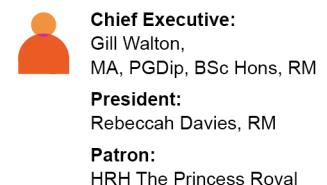
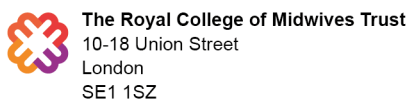
2023-00797

Maternal infection with COVID-19 and increased risk of adverse pregnancy outcomes: a meta-analysis. Wang X, Chen X, Zhang K (2022), Journal of Maternal-Fetal and Neonatal Medicine vol 35, no 25, 2022, pp 9368-9375

Background: The Coronavirus disease 2019 (COVID-19) pandemic has become worldwide, posing particularly severe challenges. Pregnancy brings changes that might make individuals more vulnerable to this viral infection. To date, the impact of COVID-19 infection on pregnancy outcomes remains controversial.

Method: We performed a meta-analysis to address the impact of COVID-19 infection on pregnancy outcomes. We searched the PubMed and China National Knowledge infrastructure (CNKI) databases for related articles. The odds

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ratio (OR) corresponding to the 95% confidence interval (95% CI) was used to define the impact of INFECTION and severity of COVID-19 on pregnancy outcomes. The statistical heterogeneity among studies was batched with the Q-test and I2 statistics.

Results: We collected 38 studies including 127,805 pregnancy women. Our meta-analysis revealed that pregnant women with COVID-19 have been linked to an increased risk of premature birth (OR = 1.66, 95% CI = 1.41–1.96), stillbirth (OR = 1.98, 95% CI = 1.22–3.21), pre-eclampsia (OR = 1.46, 95% CI = 1.18–1.80), and PROM (OR = 1.39, 95% CI = 1.07–1.81).

Conclusions: Our meta-analysis showed that infection with COVID-19 increases the risk of preterm birth, stillbirth, pre-eclampsia, and PROM. Screening and early care for pregnant women to intervene with COVID-19 is important, given the increased risk of adverse pregnancy outcomes. (Author)

2023-00794

Clinical manifestation and maternal complications and neonatal outcomes in pregnant women with COVID-19: a comprehensive evidence synthesis and meta-analysis. Soheili M, Moradi G, Baradaran HR, et al (2022), Journal of Maternal-Fetal and Neonatal Medicine vol 35, no 25, 2022, pp 5672-5685

Objectives

There is little known about pregnancy-related complications and comorbidity in this group of women. Therefore, this systematic review and meta-analysis were performed to find out whether COVID-19 may cause different manifestations and outcomes in the antepartum and postpartum period or not.

Material and methods

We searched databases, including Medline (PubMed), Embase, Scopus, Web of sciences, Cochrane library, Ovid, and CINHALL to retrieve all articles reporting the prevalence of maternal and neonatal complications, in addition to clinical manifestations, in pregnant women with COVID-19 that published with English language January to November 2020.

Results

Seventy-four studies with total 5560 pregnant women included in this systematic review. The results show that the pooled prevalence of neonatal mortality, lower birth weight, stillbirth, premature birth, and intrauterine fetal distress in women with COVID-19 was 4% (95% CI: 1 – 9%), 21% (95% CI: 11 – 31%), 2% (95% CI: 1 – 6%), 28% (95% CI: 13 – 43%), and 14% (95% CI: 4 – 25%); respectively. Moreover, the pooled prevalence of fever, cough, diarrhea, and dyspnea were 56% (95% CI: 32 – 81%), 29% (95% CI: 21 – 38%), 9% (95% CI: 2 – 16%), and 3% (95% CI: 1 – 6%) in pregnant women with COVID-19. Two studies reported that pregnant women with severe COVID pneumonia have higher levels of d-dimer. Also, COVID pneumonia is more common in pregnant women than non-pregnant.

Conclusion


According to this meta-analysis, pregnant women with COVID-19 with or without pneumonia, are at a higher risk of preeclampsia, preterm birth, miscarriage and cesarean delivery. Furthermore, the risk of LBW and intrauterine fetal distress seems to be increased in neonates. In addition, our evaluations are investigative of higher risk of COVID-19 in the third trimester in pregnant women comparing to the first and second trimester. It can be due to higher BMI in the third trimester causing to increase the likelihood of disease deterioration, which can trigger a cascade of side effects starting with coagulation, pneumonia, hypoxemia affecting the placenta leading to ICU admission, fetal distress, premature birth and higher rates of C-section. (Author)

2023-00789


Early human milk lactoferrin during SARS-CoV-2 infection. Briana DD, Papadopoulou A, Syridou G, et al (2022), Journal of Maternal-Fetal and Neonatal Medicine vol 35, no 25, 2022, pp 6704-6707

Background/aim

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Early human milk provides protection against viral infections due to its high nutritional value, abundance of maternal antibodies and the specific role of lactoferrin (Lf). Lf blocks the early interaction between SARS-CoV-2 and host cells by binding to specific cell receptors and has been proposed as a preventative and adjunct treatment for COVID-19. This preliminary report aimed to investigate concentrations of Lf in early milk of SARS-CoV-2 positive mothers versus non-infected controls.

Material and methods

In a cohort of 13 SARS-CoV-2 positive mothers and 15 controls, breast milk concentrations of Lf were determined by ELISA on day 3 postpartum. Additionally, colostrum samples of infected mothers were analyzed for SARS-CoV-2 RNA detection and anti-SARS-CoV-2 IgA and IgG determination using RT-qPCR and ELISA, respectively.

Results

No differences were found in breast milk Lf concentrations between SARS-CoV-2 positive mothers and controls. In a subgroup analysis, however, symptomatic mothers (n = 7) presented with lower breast milk Lf concentrations, as compared to asymptomatic mothers (p = .041) and healthy controls (p = .029). All milk samples tested negative for SARS-CoV-2 RNA. Early human milk of infected mothers displayed IgA and IgG SARS-CoV-2 specific reactivity.

Conclusions

Our data showed a different early breast milk Lf “profile” between COVID-19 symptomatic and asymptomatic mothers with the latter being at non-COVID levels (control group). SARS-CoV-2 RNA was not detected in any breast milk sample. Early human milk Lf levels are potentially influenced by the severity of maternal COVID-19 infection during pregnancy. (Author)

2023-00761

Parent organizations’ experiences of the pandemic response in maternity care in thirteen European countries.

Drandić D, Hartmann K, Barata C, et al (2022), *European Journal of Midwifery* vol 6, December 2022, p 71

We surveyed changes to maternity care services in the first 17 months of the COVID-19 pandemic in 13 different European countries, from the perspective of national maternity service (parent) organizations advocating for a human rights approach to maternity services. A qualitative study was conducted in November 2020. An open-question survey was sent to national maternity service (parent) organizations and members of COST Action 18211 in Europe, asking about COVID-19 measures in maternity services (antenatally, intrapartum, postnatally, and overall satisfaction). From the open answers, 16 core issues were extracted. Between February and August 2021, semi-structured interviews with the national representatives of 14 parent member organizations in Europe were conducted, collecting details on overall national situations and changes due to COVID-19 measures. The reported experiences of parent organizations from 13 European countries show wide variations in epidemiological containment measures during the first 17 months of the COVID-19 pandemic. Practices differed between facilities, resulting in emotional disquiet and confusion for parent-patients. Most countries maintained antenatal and postnatal care but restricted psychosocial support (antenatal and birth companions, visitors). Organizations from nine countries reported that women had to wear masks during labor, and all but two countries saw separations of mothers and babies. Most parent organizations described a need for more reliable information for new parents. During the pandemic, non-evidence-based practices were (re-) established in many settings, depriving women and families of many factors which evidence has shown to be essential for a positive birthing experience. Based on the findings, we consider the challenges in maternity services and propose a strategy for future crises. (Author)

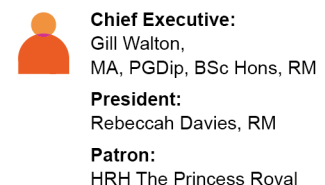
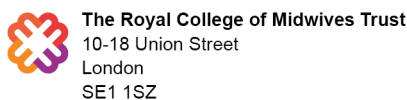
Full URL: <https://doi.org/10.18332/ejm/156902>

2023-00721

Dietary changes among pregnant individuals compared to pre-pandemic: A cross-sectional analysis of the Pregnancy during the COVID-19 Pandemic (PdP) study. Vaghef-Mehrabani E, Wang Y, Zinman J, et al (2022), 01 December 2022, Online

Introduction: Dietary changes are common in pregnancy and may affect pregnancy outcomes, yet these changes and

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the associated contributory factors during the COVID-19 pandemic have been understudied. We aimed to investigate the association between dietary change and socioeconomic variables, pre-pregnancy BMI, and mental health symptoms; the change in intake of seven food categories and their reasons; and the association between intake of these food categories and mental health symptoms.

Materials and methods: In this cross-sectional analysis, we used data from the Pregnancy during the COVID-19 Pandemic (PdP) cohort study that collected data from pregnant Canadian individuals (n = 9,870, gestational age ≤ 35 weeks) on socioeconomic factors, pandemic-related hardships, pre-pregnancy body mass index (BMI), dietary changes compared to pre-pandemic and the reasons for these changes. We assessed depressive and anxiety symptoms using the Edinburgh Postpartum Depression Scale (EPDS) and Patient-Reported Outcomes Measurement Information System (PROMIS)-Anxiety, respectively.

Results: 54.3% of the participants reported a change in their diet. Non-white ethnicity (OR = 1.33), job loss (OR = 1.29), clinically elevated depressive and anxiety symptoms (OR = 1.26 and 1.14, respectively), self-isolation (OR = 1.20), pre-pregnancy BMI (OR = 1.19), fear of COVID-19 (OR = 1.15), and pandemic phase at enrolment (OR = 0.90) significantly predicted dietary change. Most participants ate about the same amounts of dairy, meats and canned foods/dried goods as pre-pandemic (61.5, 61.7, and 60.2%, respectively), increased their intake of fresh vegetables/fruits and sweets/snacks (43.2 and 54.5%, respectively), and decreased fast-food and take-out/home delivery (53.2 and 43.1%, respectively). Changes in consumption of the food categories had a curvilinear association with mental health symptoms (except resilience) indicating greater symptoms with either decreased or increased intakes. Changes in craving, having more time for cooking/preparing foods, and being unable to go grocery shopping frequently (but not reduced affordability) were the main reasons driving these dietary changes.

Conclusion: Some factors increase the odds of dietary change among pregnant individuals during the pandemic, with some changes toward a healthy and others toward an unhealthy diet. Given the importance of a healthy diet during gestation, identifying the risk and protective factors might be the first essential step in reducing the detrimental effects of unfavorable dietary changes during the pandemic on this vulnerable population. (Author)

Full URL: <https://doi.org/10.3389/fnut.2022.997236>

2023-00695


Maternal and infant outcomes in women with and without gestational diabetes mellitus in the COVID-19 era in China: Lessons learned. Zheng W, Wang J, Zhang K, et al (2022), 22 November 2022, Online

Aims: The global COVID-19 pandemic has required a drastic transformation of prenatal care services. Whether the reformulation of the antenatal care systems affects maternal and infant outcomes remains unknown. Particularly, women with gestational diabetes mellitus (GDM) are among those who bear the greatest brunt. Thus, this study aimed to evaluate the impact of COVID-19 lockdown during late pregnancy on maternal and infant outcomes in women stratified by the GDM status in China.

Study design: The participants were women who experienced the COVID-19 lockdown during late pregnancy (3185 in the 2020 cohort) or not (2540 in the 2019 cohort) that were derived from the Beijing Birth Cohort Study. Maternal metabolic indicators, neonatal outcomes, and infant anthropometrics at 12 months of age were compared between the two cohorts, stratified by the GDM status.

Results: Participants who experienced COVID-19 lockdown in late pregnancy showed lower gestational weight gain than those in the control cohort. Nevertheless, they displayed a worse metabolic profile. COVID-19 lockdown during pregnancy was associated with higher glycosylated hemoglobin (HbA1c) ($\beta = 0.11$, 95% CI = 0.05–0.16, q-value = 0.002) and lower high density lipoprotein cholesterol level (HDL-C) level ($\beta = -0.09$, 95% CI = -0.14 to -0.04, q-value = 0.004) in women with GDM, adjusted for potential confounders. In normoglycemic women, COVID-19 lockdown in late pregnancy was associated with higher fasting glucose level ($\beta = 0.10$, 95% CI = 0.08–0.12, q-value <0.0001), lower HDL-C level ($\beta = -0.07$, 95% CI = -0.08 to -0.04, q-value <0.0001), and increased risk of pregnancy-induced hypertension

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(adjusted OR=1.80, 95%CI=1.30–2.50, q-value=0.001). The fasting glucose level decreased less from early to late pregnancy in women who experienced COVID-19 lockdown than in the controls, regardless of the GDM status. The HDL-C has risen less with COVID-19 lockdown in the normoglycemic subgroup. In contrast, no significant differences regarding neonatal outcomes or infant weight were found between the two cohorts.

Conclusion: Experiencing the COVID-19 lockdown in pregnancy was associated with worse maternal metabolic status but similar neonatal outcomes and infant weight. (Author)

Full URL: <https://doi.org/10.3389/fendo.2022.982493>

2023-00608

Prevalence of antibodies against SARS-CoV-2 among pregnant women in Norway during the period December 2019 through December 2020. Eskild A, Mørkrid L, Mortensen SB, et al (2022), *Epidemiology and Infection* vol 150, 13 January 2022, e28

We studied severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) seroprevalence among pregnant women in Norway by including all women who were first trimester pregnant (n = 6520), each month from December 2019 through December 2020, in the catchment region of Norway's second-largest hospital. We used sera that had been frozen stored after compulsory testing for syphilis antibodies in antenatal care. The sera were analysed with the Elecsys® Anti-SARS-CoV-2 immunoassay (Roche Diagnostics, Cobas e801). This immunoassay detects IgG/IgM against SARS-CoV-2 nucleocapsid antigen. Sera with equivocal or positive test results were retested with the Liaison® SARS-CoV-2 S1/S2 IgG (DiaSorin), which detects IgG against the spike (S)1 and S2 protein on the SARS-CoV-2 virus. In total, 98 women (adjusted prevalence 1.7%) had SARS CoV-2 antibodies. The adjusted seroprevalence increased from 0.3% (1/445) in December 2019 to 5.7% (21/418) in December 2020. Out of the 98 seropositive women, 36 (36.7%) had serological signs of current SARS-CoV-2 infection at the time of serum sampling, and the incidence remained low during the study period. This study suggests that SARS CoV-2 was present in the first half of December 2019, 6 weeks before the first case was recognised in Norway. The low occurrence of SARS-CoV-2 infection during 2020, may be explained by high compliance to extensive preventive measures implemented early in the epidemic. (Author)

Full URL: <https://doi.org/10.1017/S0950268822000073>

2023-00582

Perceived stress and COVID-19-related stressors: the moderating role of social support during pregnancy. Blebu BE, Tesfalul M, Karasek D, et al (2022), *Women and Health* vol 62, no 8, September 2022, pp 720-730

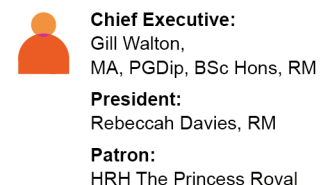
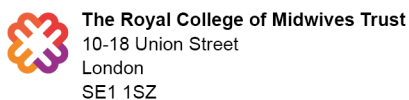
Recent evidence on perceived stress during the COVID-19 pandemic shows that birthing people experienced stress from pandemic-related stressors. While psychosocial stress is a significant predictor of adverse birth outcomes, social support can reduce stress levels during pregnancy. This study examined social support moderation of relationships between COVID-19-related stressors and perceived stress during pregnancy. The analysis included data from publicly insured pregnant participants who were enrolled in a randomized control trial of two enhanced prenatal care models in Fresno, California, and completed a third-trimester questionnaire between April and August 2020 (n = 77).

Multivariate linear regression was used to estimate the associations between perceived stress and COVID-19-related stressors and social support moderation. COVID-19-related stressors related to childcare and tension at home remained significantly associated with perceived stress adjusting for sociodemographic characteristics and other COVID-19-related stressors. Social support moderated the relationship between perceived stress and loss of childcare ($\beta = 2.4$, 95 percent CI = 0.5–4.3, $p = .014$). Overall, social support moderated the association between COVID-19 stressors and perceived stress. While social support is commonly conceptualized as protective, the finding of greater stress around childcare among individuals reporting greater social support suggests complexity for leveraging these support networks during the pandemic. (Author)

2023-00575

Intimate partner violence against pregnant women during the COVID-19 pandemic: a systematic review and meta-analysis. Huldani H, Kamal Abdelbasset W, Abdalkareem Jasim S, et al (2022), *Women and Health* vol 62, no 6, July 2022, pp

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This systematic review and meta-analysis aimed to estimate the pooled prevalence of (intimate partner violence) IPV against pregnant women in the COVID-19 pandemic. A literature search was conducted in PubMed, Web of Science, and Scopus for observational studies regarding the prevalence of IPV against pregnant women during the COVID-19 pandemic. The search was performed with the following keywords: intimate partner violence, domestic violence, battered women, wife assault, partner assault, wife abuse, partner abuse, femicide, domestic homicide, pregnancy, gestation, pregnant women, COVID-19, SARS-CoV-2, 2019-nCoV, Coronavirus Disease-19, 2019 Novel Coronavirus, Wuhan Coronavirus, SARS Coronavirus 2, Wuhan Seafood Market Pneumonia Virus. Heterogeneity between the studies was assessed using Cochran's Q test and I2 index. In addition, a random-effects model was used to estimate the prevalence of IPV. Data analysis was performed in Stata software version 16. Six articles met our inclusion criteria, which were conducted on 2213 pregnant women. The pooled prevalence of total IPV was estimated at 22 percent (95 percent Confidence Interval [CI]: 4-40 percent). Moreover, the pooled prevalence of psychological, physical, and sexual violence was reported to be 24 percent (95 percent CI: 13-35 percent), 14 percent (95 percent CI: 7-20 percent), and 6 percent (95 percent CI: 4-9 percent), respectively. Publication bias was significant ($P = .01$). According to the results, IPV against pregnant women has been relatively prevalent during the COVID-19 pandemic. Therefore, identifying the women who are at the risk of IPV is essential to preventing the consequences of maternal-fetal abuse and designing strategies to facilitate the reporting of violence during pandemics. (Author)

2023-00389

Outpatient maternity care and telemedicine use perceptions in the COVID-19 pandemic: a 2020 CERA survey. Foster KE, Casola AR, Uzumcu Z, et al (2022), *Women and Health* vol 62, no 5, May-June 2022, pp 402-411

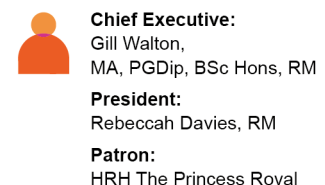
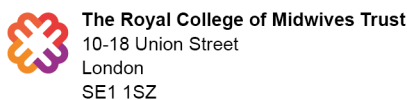
The COVID-19 pandemic resulted in rapid telemedicine implementation. This study aimed to identify mean differences in telehealth maternity care provided by perceived patient acceptability and clinician satisfaction, and to determine the association between acceptability, satisfaction, and perceived anticipation of long-term telehealth utilization in family medicine maternity care. Data from the 2020 Council of Academic Family Medicine Educational Research Alliance general membership survey of family medicine educators and practicing clinicians were analyzed. Respondents who reported providing maternity care in the 12 months preceding the survey were included ($N = 290$). Descriptive statistics were calculated. ANOVA was used to determine the mean difference in percent maternity care provided by reported clinician satisfaction and perceived patient acceptability. Logistic regression models were fit to determine associations between perceived telehealth satisfaction and acceptability with long-term use. The sample was 67 percent female, 85 percent white, mean age of 45 years ($SE = .63$). 51 percent reported total prenatal visits decreased since pandemic onset. Greater agreement with perceived patient telehealth acceptability ($OR = 3.73$, 95 percent CI 1.09, 12.71) and clinician telehealth satisfaction ($OR = 3.72$, 95 percent CI 1.40, 9.86) was significantly associated with anticipated long-term usage. Perceived patient telehealth acceptance and clinician satisfaction were significantly higher among clinicians providing more telehealth and positively associated with anticipated long-term use. (Author)

2023-00381

Association Between Awareness, Perceived Severity, and Behavioral Control of COVID -19 With Self-Care and Anxiety in Pregnancy: A Cross-Sectional Study. Khazaeian S, Fathnezhad-Kazemi A, et al (2022), *Women and Health* vol 62, no 1, January 2022, pp 55-67

COVID-19 pandemic has caused a tidal wave of anxiety and stress among Iranians, especially pregnant women. This study aimed to assess the association between knowledge, perceived severity, and controllability of COVID-19 with self-care and health anxiety specially in pregnancy. This cross-sectional study was performed on 440 pregnant women. Data were collected using demographic-obstetrics characteristics, as well as the questionnaires of knowledge, perceived severity, and perceived controllability of the COVID-19, health anxiety, and self-care. Self-care was positively correlated with knowledge, perceived severity, and perceived controllability of the COVID-19. Nonetheless, health anxiety had a significant and inverse association with knowledge and perceived controllability, while there was a positive and significant correlation between perceived severity and health anxiety. Based on linear

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regression, three variables of knowledge, perceived severity, and perceived controllability of the COVID-19 could explain 46.3 and 17.5% of variations in self-care and health anxiety, respectively. It is suggested that due to the critical importance of prenatal care, managers, and health-care providers promote the use of such methods as telehealth and home-based caregivers, especially in areas with inadequate access to health care. So, the pregnant women can be followed up and receive medical care devoid of any stress and anxiety. (Author)

2023-00377

Obstetric and perinatal outcomes in pregnant women with COVID-19: an interim analysis. Khoiwal K, Agarwal A, Gaurav A, et al (2022), Women and Health vol 62, no 1, January 2022, pp 12-20

The coronavirus disease (COVID-19) has affected the health-care system worldwide. The effect of COVID-19 on obstetric and perinatal outcomes is yet to be completely ascertained. A hospital-based prospective observational study was conducted at the Department of Obstetrics & Gynecology, AIIMS Rishikesh from July to December 2020. A total of 60 COVID-positive pregnant women were included. Obstetric and perinatal outcomes were compared with 60 COVID-negative pregnant women. A subgroup comparison was also performed between symptomatic and asymptomatic pregnant women with COVID-19. Majority of COVID-positive pregnant women were asymptomatic (81.7%). Eleven patients were symptomatic, out of which 9 (15%) had mild disease and only 2 (3.3%) had severe pneumonia. There was an increased likelihood of early pregnancy loss (5%), oligohydramnios (21.7%), preterm birth (31.7%), and cesarean section (53.3%). The occurrence of preterm birth was significantly higher in symptomatic women than asymptomatic women ($p = .01$). Oligohydramnios was significantly more frequent in COVID-positive than COVID-negative pregnant women ($p = .048$). Preterm birth and cesarean rate were slightly higher in COVID-positive group but the difference was not statistically significant. Other obstetric outcomes were comparable in both groups. The majority of women with COVID-19 infection in pregnancy remain asymptomatic or have mild symptoms. Still, it may lead to maternal death and poor fetal outcomes in form of early pregnancy loss, prematurity, oligohydramnios, intrapartum fetal distress, and increased cesarean rate. Therefore, COVID-19 preventive measures should be strictly implemented and followed. (Author)

2023-00184

Active Intrapartum SARS-CoV-2 Infection and Pregnancy Outcomes. Nunes MC, Jones S, Strehlau R, et al (2022), American Journal of Perinatology 28 October 2022

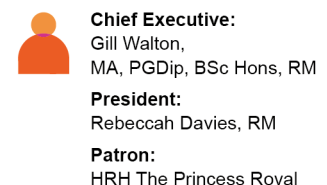
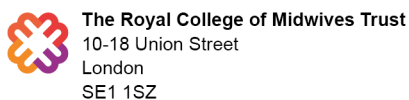
Objective Severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2) infection during pregnancy has been associated with poor pregnancy outcomes. There is, however, not much information on the impact of the timing of SARS-CoV-2 infection on pregnancy outcomes, and studies from low-middle income settings are also scarce.

Study Design We conducted a cross-sectional study from April to December 2020, in South Africa, to assess the association of SARS-CoV-2 infection on a nasal swab at the time of labor with fetal death, preterm birth, low birth weight, or pregnancy-induced complications. When possible, maternal blood, cord blood, and placenta were collected. SARS-CoV-2 infection was investigated by a nucleic acid amplification test (NAAT).

Results Overall, 3,117 women were tested for SARS-CoV-2 on a nasal swab, including 1,562 (50%) healthy women with uncomplicated term delivery. A positive NAAT was detected among 132 (4%) women. Adverse birth outcomes or pregnancy-related complications were not associated with SARS-CoV-2 infection at the time of labor. Among SARS-CoV-2-infected women, an NAAT-positive result was also obtained from 6 out of 98 (6%) maternal blood samples, 8 out of 93 (9%) cord-blood samples, 14 out of 54 (26%) placentas, and 3 out of 22 (14%) nasopharyngeal swabs from newborns collected within 72 hours of birth. Histological assessment of placental tissue revealed that women with SARS-CoV-2 nasal infection had a higher odds (3.82, 95% confidence interval: 1.20, 12.19) of chronic chorioamnionitis compared with those without SARS-CoV-2 infection.

Conclusion Our study demonstrates that intrapartum, SARS-CoV-2 infection was not associated with evaluated poor outcomes. In utero fetal and placental infections and possible vertical and/or horizontal viral transfer to the newborn

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were detected among women with nasal SARS-CoV-2 infection. (Author)

Full URL: <https://www.thieme-connect.com/products/ejournals/abstract/10.1055/s-0042-1757274>

2023-00149

The impact of maternal SARS-CoV-2 infection and COVID-19 vaccination on maternal-fetal outcomes. Piekos SN, Price ND, Hood L, et al (2022), *Reproductive Toxicology* vol 114, December 2022, pp 33-43

The rapidly evolving COVID-19 pandemic has resulted in an upsurge of scientific productivity to help address the global health crisis. One area of active research is the impact of COVID-19 on pregnancy. Here, we provide an epidemiological overview about what is known about the effects of maternal SARS-CoV-2 infection and COVID-19 vaccination on maternal-fetal outcomes, and identify gaps in knowledge. Pregnant people are at increased risk for severe COVID-19, and maternal SARS-CoV-2 infection increases the risk of negative maternal-fetal outcomes. Despite this elevated risk, there have been high rates of vaccine hesitancy, heightened by the initial lack of safety and efficacy data for COVID-19 vaccination in pregnancy. In response, retrospective cohort studies were performed to examine the impact of COVID-19 vaccination during pregnancy. Here, we report the vaccine's efficacy during pregnancy and its impact on maternal-fetal outcomes, as well as an overview of initial studies on booster shots in pregnancy. We found that pregnant people are at risk for more severe COVID-19 outcomes, maternal SARS-CoV-2 infection is associated with worse birth outcomes, COVID-19 vaccine hesitancy remains prevalent in the pregnant population, and COVID-19 vaccination and boosters promote better maternal-fetal outcomes. The results should help reduce vaccine hesitancy by alleviating concerns about the safety and efficacy of administering the COVID-19 vaccine during pregnancy. Overall, this review provides an introduction to COVID-19 during pregnancy. It is expected to help consolidate current knowledge, accelerate research of COVID-19 during pregnancy and inform clinical, policy, and research decisions regarding COVID-19 vaccination in pregnant people. (Author)

Full URL: <https://doi.org/10.1016/j.reprotox.2022.10.003>

2023-00112

Effects of the COVID-19 pandemic on maternal and perinatal health service utilisation and outcomes in Mozambique: an interrupted time series analysis. Lydon MM, Vilanculos J, Martinez A, et al (2022), *BMJ Open* vol 12, no 11, November 2022, e062975

Objectives To measure the effects of the COVID-19 pandemic on maternal and perinatal health services and outcomes in Mozambique.

Design This is an observational study analysing routine service delivery data using interrupted time series analysis. We used 43 months of district-level panel data with April 2020 as the point of interruption, adjusting for seasonality and population growth to analyse service utilisation outcomes.

Setting The 222 public health facilities in Nampula Province, Mozambique, from January 2018 to July 2021.

Outcome measures The change in the number of antenatal care (ANC) visits and facility deliveries, and the change in the rate of adverse birth outcomes at pandemic onset and over time compared with expected levels and trends, respectively.

Results There were no significant disruptions to ANC at pandemic onset. Following this, there was a significant monthly increase of 29.8 (18.2–41.4) first ANC visits and 11.3 (5.5–17.2) ANC visits within the first trimester per district above prepandemic trends. There was no significant change in the number of fourth ANC visits completed. At the onset of COVID-19, districts experienced a significant decrease of 71.1 (–110.5 to –31.7) facility deliveries, but the rate then increased significantly above prepandemic trends. There was no significant increase in any adverse birth outcomes during the pandemic. Conversely, districts observed a significant monthly decrease of 5.3 uterine rupture cases (–9.9 to –0.6) and 19.2 stillbirths (–33.83 to –4.58) per 100 000 facility deliveries below prepandemic trends. There was a significant drop of 23.5 cases of neonatal sepsis/100 000 facility deliveries per district at pandemic onset.

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Conclusion Despite pandemic interference, Nampula Province saw no disruptions to ANC, only temporary disruptions to facility deliveries and no increases in adverse birth outcomes. ANC visits surprisingly increased, and the rates of uterine rupture, stillbirth and neonatal sepsis decreased, suggesting that Nampula Province may offer insights about health system resilience. (Author)

Full URL: <https://bmjopen.bmj.com/content/12/11/e062975>

2022-10984

Effects of spike protein and toxin-like peptides found in COVID-19 patients on human 3D neuronal/glia model undergoing differentiation: Possible implications for SARS-CoV-2 impact on brain development. Pistollato F, Petrillo M, Clerbaux LA, et al (2022), *Reproductive Toxicology* vol 111, August 2022, pp 34-48

The possible neurodevelopmental consequences of SARS-CoV-2 infection are presently unknown. In utero exposure to SARS-CoV-2 has been hypothesized to affect the developing brain, possibly disrupting neurodevelopment of children. Spike protein interactors, such as ACE2, have been found expressed in the fetal brain, and could play a role in potential SARS-CoV-2 fetal brain pathogenesis. Apart from the possible direct involvement of SARS-CoV-2 or its specific viral components in the occurrence of neurological and neurodevelopmental manifestations, we recently reported the presence of toxin-like peptides in plasma, urine and fecal samples specifically from COVID-19 patients. In this study, we investigated the possible neurotoxic effects elicited upon 72-hour exposure to human relevant levels of recombinant spike protein, toxin-like peptides found in COVID-19 patients, as well as a combination of both in 3D human iPSC-derived neural stem cells differentiated for either 2 weeks (short-term) or 8 weeks (long-term, 2 weeks in suspension + 6 weeks on MEA) towards neurons/glia. Whole transcriptome and qPCR analysis revealed that spike protein and toxin-like peptides at non-cytotoxic concentrations differentially perturb the expression of SPHK1, ELN, GASK1B, HEY1, UTS2, ACE2 and some neuronal-, glia- and NSC-related genes critical during brain development. Additionally, exposure to spike protein caused a decrease of spontaneous electrical activity after two days in long-term differentiated cultures. The perturbations of these neurodevelopmental endpoints are discussed in the context of recent knowledge about the key events described in Adverse Outcome Pathways relevant to COVID-19, gathered in the context of the CIAO project (<https://www.ciao-covid.net/>). (Author)

2022-10949

Examining the impact of trimester of diagnosis on COVID-19 disease progression in pregnancy. Schell RC, Macias DA, Garner WH, et al (2022), *American Journal of Obstetrics & Gynecology MFM* vol 4, no 6, November 2022, 100728

BACKGROUND

COVID-19 infection is associated with increased morbidity in pregnancy and adverse maternal and neonatal outcomes. Little is currently known about how the timing of infection during pregnancy affects these outcomes.

OBJECTIVE

This study aimed to evaluate the effect of trimester of COVID-19 infection on disease progression and severity in pregnant patients.

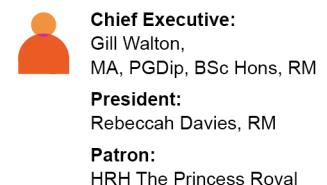
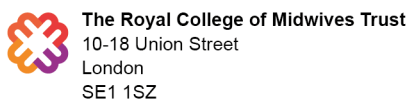
STUDY DESIGN

This was a prospective cohort study of pregnant patients diagnosed with COVID-19 infection who delivered at a single urban hospital. Universal testing for SARS-CoV-2 was performed at hospital admission and for symptomatic patients in inpatient, emergency department, and outpatient settings. Disease severity was defined as asymptomatic, mild, moderate, severe, or critical on the basis of National Institutes of Health criteria. We evaluated disease progression from asymptomatic to symptomatic infection and from asymptomatic or mild infection to moderate, severe, or critical illness, and stratified by trimester of COVID-19 diagnosis. Primary outcomes included progression of COVID-19 disease severity and a composite obstetrical outcome, which included delivery at <37 weeks, preeclampsia with severe features, abruption, excess blood loss at delivery (>500 mL for vaginal or >1000 mL for cesarean delivery), and stillbirth.

RESULTS

From March 18, 2020 to September 30, 2021, 1326 pregnant patients were diagnosed with COVID-19 and delivered at

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our institution, including 103 (8%) first-, 355 (27%) second-, and 868 (65%) third-trimester patients. First-trimester patients were older and had more medical comorbidities; 86% of patients in all trimesters were Hispanic. Among patients admitted within 14 days of a positive test, 3 of 18 (17%) first-trimester, 20 of 47 (43%) second-trimester, and 34 of 574 (6%) third-trimester patients were admitted for the indication of COVID-19 illness. Across all trimesters, 1195 (90%) of 1326 COVID-19 infections were asymptomatic or mild, and 45 (10%) of 436 initially asymptomatic patients developed symptoms. Of patients with asymptomatic or mild symptoms at diagnosis, 4 (4%) of 93 first-, 18 (5%) of 337 second-, and 49 (6%) of 836 third-trimester patients developed moderate, severe, or critical illness ($P=.80$). There was no significant difference in composite obstetrical outcome with respect to trimester of COVID-19 diagnosis (24% first-trimester, 28% second-trimester, 28% third-trimester patients; $P=.69$).

CONCLUSION

Moderate, severe, or critical illness develops in almost 10% of pregnant patients. The frequency of COVID-19 disease progression in pregnancy does not differ by trimester of diagnosis. (Author)

2022-10823

WHO Global Clinical Platform: Pregnancy module - Statistical analysis plan. World Health Organization (2022), World Health Organization 3 August 2022

In response to the coronavirus disease (COVID-19) pandemic, the World Health Organization (WHO) launched a global COVID-19 anonymized clinical data platform (WHO Global Clinical Platform) in 2020. It is intended to provide Member States with a standardized approach and platform to collect clinical data to better characterize the natural history of the disease, identify risk factors for severe disease and describe treatment interventions. The use of a single standardized clinical data tool enables aggregation and analysis of clinical data from around the world to gain a better understanding of the disease, inform the public health response and prepare for large-scale clinical trials.

Recognizing the limited evidence on the clinical characteristics of COVID-19 among pregnant and recently pregnant women, the UNDP-UNFPA-UNICEF-WHO-World Bank Special Programme of Research, Development and Research Training in Human Reproduction (HRP), Department of Sexual and Reproductive Health and Research (SRH), World Health Organization outbreak group led the effort to develop a pregnancy module to complement the core case report form (Core CRF). The purpose of this clinical data tool parallels that of the Core CRF – to gain a better understanding of the disease among pregnant women, inform the public health response for this special population and prepare for further investigations.

This statistical analysis plan (SAP) provides exploratory objectives which may generate hypotheses for further investigation. (Author)

Full URL: <https://www.who.int/publications/i/item/WHO-2019-nCoV-Clinical-Pregnancy-Analytic-plan-2022.1>

2022-10822

Certification of deaths during pregnancy, childbirth, or the puerperium where confirmed or suspected COVID-19 is a cause of death. World Health Organization (2022), World Health Organization 8 August 2022

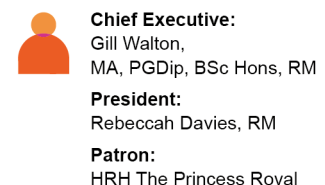
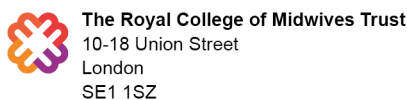
The purpose of this guide is to facilitate the certification of confirmed or suspected COVID-19 as a cause of death of women during pregnancy, childbirth or the puerperium. It is intended as a brief summary of the key points of international guidelines on certification of cause of deaths, as applied to this population: it should always be read in conjunction with the International Guidelines for Certification and Classification (Coding) of COVID-19 As Cause of Death. The WHO Application of ICD-10 to deaths during pregnancy, childbirth and the puerperium: ICD-MM is also a helpful reference. (Author)

Full URL: <https://www.who.int/publications/i/item/9789240049314>

2022-10812

Generic protocol: a prospective cohort study investigating maternal, pregnancy and neonatal outcomes for women and neonates infected with SARS-CoV-2, 1 November 2022, version 3.1. World Health Organization (2022), World Health

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The purpose of this study is to determine if SARS-CoV-2 infection during pregnancy increases the risk of adverse pregnancy, perinatal, neonatal, and postpartum outcomes; and describe pregnancy, perinatal, neonatal and postpartum outcomes among women who have received at least one dose of a COVID-19 vaccine during pregnancy. Additionally, the study will characterize the clinical spectrum of COVID-19 in pregnant women; determine the probability of detecting SARS-CoV-2 RNA in pregnancy-related fluids (i.e. amniotic fluid), breast milk and tissues; follow clinical outcomes of women and their neonates up to 6 weeks after childbirth; and assess COVID-19 vaccine uptake among pregnant women in the study, along with symptoms and events following vaccination. (Author)

Full URL: <https://www.who.int/publications/i/item/WHO-2019-nCoV-pregnancy-and-neonates-2022.1>

2022-10634

Covid-19: New mum leaves Royal Papworth hospital after a year. BBC News (2022), BBC News 18 November 2022

A pregnant woman who contracted Covid-19, had an emergency C-section and was put into a coma before being able to hold her baby has left hospital after more than a year. (Author)

Full URL: https://www.bbc.co.uk/news/uk-england-cambridgeshire-63659893?at_medium=RSS&at_campaign=KARANGA

2022-10610

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 (2022), *Obstetrics & Gynecology* 27 October 2022, online

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 χ^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://doi.org/10.1097/AOG.0000000000004978>

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2022-10463

Contraceptive and pregnancy concerns in the UK during the first COVID-19 lockdown: A rapid study. Hammond N, Steels S, King G (2022), *Sexual & Reproductive Healthcare* vol 33, September 2022, 100754

Objectives

COVID-19 resulted in significant disruption to sexual and reproductive health (SRH) services globally and the impact of this remains under explored. This study aimed to explore the impact of COVID-19 on SRH during the initial weeks of the first UK lockdown.

Design

This rapid study employed a cross-sectional anonymous survey design. Between 9th April and 4th May 2020, participants completed an online questionnaire around the impacts of COVID-19 on SRH. The survey was completed by 194 participants. The findings in this paper, report on data from closed and free text questions from 32% (n = 62) of the total sample who said they were able to get pregnant.

Results

Participants raised concerns around reduced access to, or a denial of, SRH services as well as reduced choice when such services were available. Participants felt their right to access SRH care was impinged and there were anxieties around the impact of COVID-19 on maternal and foetal health.

Conclusions

The study contributes to a better understanding of the concerns, during the first 8 weeks of the UK lockdown, of those who could get pregnant. Policy makers and planners must ensure that SRH policy, that recognises the importance of bodily autonomy and rights, is central to pandemic planning and responses both in the UK and globally. Such policies should ensure the immediate implementation of protocols that protect SRH service delivery, alongside informing service users of both their right to access such care and how to do so. Further work is necessary with members from minority communities who are mostly absent from this study to explore if, and how, COVID-19 may have exacerbated already existing disparities. (Author)

Full URL: <https://doi.org/10.1016/i.srhc.2022.100754>

2022-10331

Use of convalescent plasma in pregnant women with early stage COVID-19 infection in a tertiary care hospital in Dubai, February to March 2021: a case series study. Adan H, Harb D, Hazari K, et al (2022), *BMC Pregnancy and Childbirth* vol 22, no 730, 25 September 2022

Background

The use of COVID-19 convalescent plasma (CCP) for the treatment of SARS-CoV-2 infection in pregnancy is intriguing in view of its safety profile in pregnancy and historical precedence of the use of plasma for other viral illnesses. This study aimed to evaluate the use of CCP in pregnant women with early COVID-19 infection.

Methods

This is a retrospective case series study. We have included seven pregnant women admitted with early COVID-19 infection to a tertiary care hospital, Latifa Maternity Hospital in Dubai, United Arab Emirates between 12 February and 04 March 2021 and who consented to receive COVID-19 convalescent plasma as part of their treatment plan. Main outcomes measured were clinical and radiological features, laboratory tests, WHO clinical progression scale pre and post treatment, and maternal, fetal outcomes. COVID-19 clinical severity was classified according to the NIH guidelines for criteria of SARS-CoV-2. For the radiological features, a modified chest X-ray scoring system was used where each lung was divided into 6 zones (3 on each side upper, middle, and lower). Opacities were classified into reticular, ground glass, patchy and dense consolidations patterns.

Results

Seven pregnant women with early COVID-19 were enrolled in this study, their mean age was 28 years (SD 3.6). Four

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had comorbidities: 2 with diabetes, 1 with asthma, and 1 was obese. Five patients were admitted with a WHO clinical progression score of 4 (hospitalized; with no oxygen therapy) and 2 with a score of 5 (hospitalized; oxygen by mask/nasal prongs). Upon follow up on day 10, 6 patients had a WHO score of 1 or 2 (asymptomatic/mild symptoms) indicating clinical recovery. Adverse reactions were reported in 2 patients, one reported a mild skin rash, and another developed transfusion related circulatory overload. All patients were discharged alive.

Conclusion

CCP seems to be a promising modality of treating COVID-19 infected pregnant women. However, further studies are needed to ascertain the efficacy of CCP in preventing progressive disease in the management of COVID-19 infection in pregnant women. (Author)

Full URL: <https://doi.org/10.1186/s12884-022-05043-w>

2022-10303

Pregnancy during COVID-19: social contact patterns and vaccine coverage of pregnant women from CoMix in 19 European countries. Wong KLM, Gimma A, Paixao ES, et al (2022), BMC Pregnancy and Childbirth vol 22, no 757, 08 October 2022

Background

Evidence and advice for pregnant women evolved during the COVID-19 pandemic. We studied social contact behaviour and vaccine uptake in pregnant women between March 2020 and September 2021 in 19 European countries.

Methods

In each country, repeated online survey data were collected from a panel of nationally-representative participants. We calculated the adjusted mean number of contacts reported with an individual-level generalized additive mixed model, modelled using the negative binomial distribution and a log link function. Mean proportion of people in isolation or quarantine, and vaccination coverage by pregnancy status and gender were calculated using a clustered bootstrap.

Findings

We recorded 4,129 observations from 1,041 pregnant women, and 115,359 observations from 29,860 non-pregnant individuals aged 18–49. Pregnant women made slightly fewer contacts (3.6, 95%CI = 3.5–3.7) than non-pregnant women (4.0, 95%CI = 3.9–4.0), driven by fewer work contacts but marginally more contacts in non-essential social settings. Approximately 15–20% pregnant and 5% of non-pregnant individuals reported to be in isolation and quarantine for large parts of the study period.

COVID-19 vaccine coverage was higher in pregnant women than in non-pregnant women between January and April 2021. Since May 2021, vaccination in non-pregnant women began to increase and surpassed that in pregnant women.

Interpretation

Limited social contact to avoid pathogen exposure during the COVID-19 pandemic has been a challenge to many, especially women going through pregnancy. More recognition of maternal social support desire is needed in the ongoing pandemic. As COVID-19 vaccination continues to remain an important pillar of outbreak response, strategies to promote correct information can provide reassurance and facilitate informed pregnancy vaccine decisions in this vulnerable group. (Author)

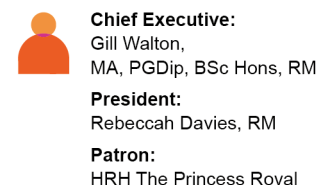
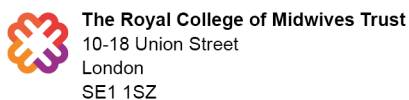
Full URL: <https://doi.org/10.1186/s12884-022-05076-1>

2022-10256

Timing and severity of COVID-19 during pregnancy and risk of preterm birth in the International Registry of Coronavirus Exposure in Pregnancy. Smith LH, Dollinger CY, VanderWeele TJ, et al (2022), BMC Pregnancy and Childbirth vol 22, no 775, 18 October 2022

Background

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Studies of preterm delivery after COVID-19 are often subject to selection bias and do not distinguish between early vs. late infection in pregnancy, nor between spontaneous vs. medically indicated preterm delivery. This study aimed to estimate the risk of preterm birth (overall, spontaneous, and indicated) after COVID-19 during pregnancy, while considering different levels of disease severity and timing.

Methods

Pregnant and recently pregnant people who were tested for or clinically diagnosed with COVID-19 during pregnancy enrolled in an international internet-based cohort study between June 2020 and July 2021. We used several analytic approaches to minimize confounding and immortal time bias, including multivariable regression, time-to-delivery models, and a case-time-control design.

Results

Among 14,264 eligible participants from 70 countries who did not report a pregnancy loss before 20 gestational weeks, 5893 had completed their pregnancies and reported delivery information; others were censored at time of their last follow-up. Participants with symptomatic COVID-19 before 20 weeks' gestation had no increased risk of preterm delivery compared to those testing negative, with adjusted risks of 10.0% (95% CI 7.8, 12.0) vs. 9.8% (9.1, 10.5). Mild COVID-19 later in pregnancy was not clearly associated with preterm delivery. In contrast, severe COVID-19 after 20 weeks' gestation led to an increase in preterm delivery compared to milder disease. For example, the risk ratio for preterm delivery comparing severe to mild/moderate COVID-19 at 35 weeks was 2.8 (2.0, 4.0); corresponding risk ratios for indicated and spontaneous preterm delivery were 3.7 (2.0, 7.0) and 2.3 (1.2, 3.9), respectively.

Conclusions

Severe COVID-19 late in pregnancy sharply increased the risk of preterm delivery compared to no COVID-19. This elevated risk was primarily due to an increase in medically indicated preterm deliveries, including preterm cesarean sections, although an increase in spontaneous preterm delivery was also observed. In contrast, mild or moderate COVID-19 conferred minimal risk, as did severe disease early in pregnancy. (Author)

Full URL: <https://doi.org/10.1186/s12884-022-05092-1>

2022-10106

Analysis of Residential Segregation and Racial and Ethnic Disparities in Severe Maternal Morbidity Before and During the COVID-19 Pandemic. Hung P, Liu J, Norregaard C, et al (2022), JAMA Network Open vol 5, no 10, October 2022, e2237711

Importance Persistent racial and ethnic disparities in severe maternal morbidity (SMM) in the US remain a public health concern. Structural racism leaves women of color in a disadvantaged situation especially during COVID-19, leading to disproportionate pandemic afflictions among racial and ethnic minority women.

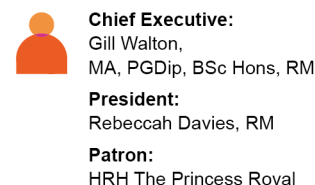
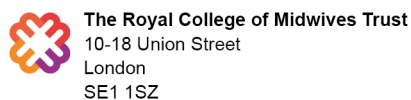
Objective To examine racial and ethnic disparities in SMM rates before and during the COVID-19 pandemic and whether the disparities varied with level of Black residential segregation.

Design, Setting, and Participants A statewide population-based retrospective cohort study used birth certificates linked to all-payer childbirth claims data in South Carolina. Participants included women who gave birth between January 2018 and June 2021. Data were analyzed from December 2021 to February 2022.

Exposures Exposures were (1) period when women gave birth, either before the pandemic (January 2018 to February 2020) or during the pandemic (March 2020 to June 2021) and (2) Black-White residential segregation (isolation index), categorizing US Census tracts in a county as low (<40%), medium (40%-59%), and high (≥60%).

Main Outcomes and Measures SMM was identified using International Statistical Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) codes developed by the US Centers for Disease Control and Prevention. Multilevel logistic regressions with an interrupted approach were used, adjusting for maternal-level and facility-level factors, accounting for residential county-level random effects.

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Results Of 166 791 women, 95 098 (57.0%) lived in low-segregated counties (mean [SD] age, 28.1 [5.7] years; 5126 [5.4%] Hispanic; 20 523 [21.6%] non-Hispanic Black; 62 690 [65.9%] White), and 23 521 (14.1%) women (mean [SD] age, 28.1 [5.8] years; 782 [3.3%] Hispanic; 12 880 [54.8%] non-Hispanic Black; 7988 [34.0%] White) lived in high-segregated areas. Prepandemic SMM rates were decreasing, followed by monthly increasing trends after March 2020. On average, living in high-segregated communities was associated with higher odds of SMM (adjusted odds ratio [aOR], 1.61; 95% CI, 1.06-2.34). Black women regardless of residential segregation had higher odds of SMM than White women (aOR, 1.47; 95% CI, 1.11-1.96 for low-segregation; 2.12; 95% CI, 1.38-3.26 for high-segregation). Hispanic women living in low-segregated communities had lower odds of SMM (aOR, 0.48; 95% CI, 0.25-0.90) but those living in high-segregated communities had nearly twice the odds of SMM (aOR, 1.91; 95% CI, 1.07-4.17) as their White counterparts.

Conclusions and Relevance Living in high-segregated Black communities in South Carolina was associated with racial and ethnic SMM disparities. During the COVID-19 pandemic, Black vs White disparities persisted with no signs of widening gaps, whereas Hispanic vs White disparities were exacerbated. Policy reforms on reducing residential segregation or combating the corresponding structural racism are warranted to help improve maternal health.

(Author)

Full URL: <https://doi.org/10.1001/jamanetworkopen.2022.37711>

2022-09695

Clinical risk factors of adverse outcomes among women with COVID-19 in the pregnancy and postpartum period: A sequential, prospective meta-analysis. Smith ER, Oakley E, Grandner GW, et al (2023), American Journal of Obstetrics & Gynecology (AJOG) vol 228, no 2, February 2023, pp 161-177

Objective

This sequential, prospective meta-analysis (sPMA) sought to identify risk factors among pregnant and postpartum women with COVID-19 for adverse outcomes related to: disease severity, maternal morbidities, neonatal mortality and morbidity, adverse birth outcomes.

Data sources

We prospectively invited study investigators to join the sPMA via professional research networks beginning in March 2020.

Study eligibility criteria

Eligible studies included those recruiting at least 25 consecutive cases of COVID-19 in pregnancy within a defined catchment area.

Study appraisal and synthesis methods

We included individual patient data from 21 participating studies. Data quality was assessed, and harmonized variables for risk factors and outcomes were constructed. Duplicate cases were removed. Pooled estimates for the absolute and relative risk of adverse outcomes comparing those with and without each risk factor were generated using a two-stage meta-analysis.

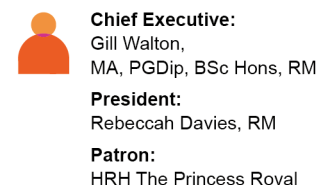
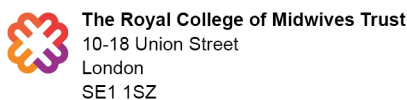
Results

We collected data from 33 countries and territories, including 21,977 cases of SARS-CoV-2 infection in pregnancy or postpartum. We found that women with comorbidities (pre-existing diabetes, hypertension, cardiovascular disease) versus those without were at higher risk for COVID-19 severity and pregnancy health outcomes (fetal death, preterm birth, low birthweight). Participants with COVID-19 and HIV were 1.74 times (95% CI: 1.12, 2.71) more likely to be admitted to the ICU. Pregnant women who were underweight before pregnancy were at higher risk of ICU admission (RR 5.53, 95% CI: 2.27, 13.44), ventilation (RR 9.36, 95% CI: 3.87, 22.63), and pregnancy-related death (RR 14.10, 95% CI: 2.83, 70.36). Pre-pregnancy obesity was also a risk factor for severe COVID-19 outcomes including ICU admission (RR 1.81, 95% CI: 1.26, 2.60), ventilation (RR 2.05, 95% CI: 1.20, 3.51), any critical care (RR 1.89, 95% CI: 1.28, 2.77), and pneumonia (RR 1.66, 95% CI: 1.18, 2.33). Anemic pregnant women with COVID-19 also had increased risk of ICU admission (RR 1.63, 95% CI: 1.25, 2.11) and death (RR 2.36, 95% CI: 1.15, 4.81).

Conclusion

We found that pregnant women with comorbidities including diabetes, hypertension, and cardiovascular disease

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were at increased risk for severe COVID-19-related outcomes, maternal morbidities, and adverse birth outcomes. We also identified several less commonly-known risk factors, including HIV infection, pre-pregnancy underweight, and anemia. Although pregnant women are already considered a high-risk population, special priority for prevention and treatment should be given to pregnant women with these additional risk factors. (Author)

Full URL: <https://doi.org/10.1016/j.ajog.2022.08.038>

2022-09680

Effectiveness of REGEN-COV combination monoclonal antibody infusion to reduce the risk of COVID-19

hospitalization in pregnancy: a retrospective cohort study. Williams FB, Morgan JA, Elmayan A, et al (2023), American Journal of Obstetrics & Gynecology (AJOG) vol 228, no 1, January 2023, pp 102-103

Objective

Pregnancy is a risk factor for severe COVID-19.¹ The REGEN-COV combination monoclonal antibody infusion, efficaciously reduced COVID-19 hospitalization in nonpregnant patients who were at risk of severe disease but did not meet the admission criteria.² When REGEN-COV was issued emergency use authorization in the summer of 2021, national organizations endorsed the use of antispikes monoclonal antibodies in pregnant patients, despite their exclusion from efficacy trials.³ We hypothesized that REGEN-COV infusion reduces the risk of COVID-19 hospitalization among pregnant patients diagnosed during alpha- and delta-predominant COVID-19 waves.

Study Design

This is a retrospective cohort study in a large regional hospital system including unvaccinated pregnant patients with polymerase chain reaction-confirmed symptomatic SARS-CoV-2 infection who did not meet admission criteria at the time of diagnosis from March 2020 through December 2021. Patients with higher-order multiple gestations and symptom onset at >10 days before presentation were excluded, as were those who received inpatient care at the time of diagnosis—either for COVID-19 or for delivery. REGEN-COV administration was compared against no administration; the decision for administration was made by the treating clinician and the patient concerned, based on a shared decision-making model. The primary outcome was subsequent COVID-19 hospitalization. The secondary outcomes included National Institutes of Health-defined critical or severe COVID-19, preterm delivery, and perinatal outcomes. Adverse events included an infusion reaction or re-presentation to care secondary to suspected complications from REGEN-COV infusion. A subanalysis was planned to assess outcomes in patients at the highest risk of admission, defined as having COVID-19 Risk of Complications Score ≥ 3 .⁴ The demographic and clinical characteristics were compared by Student t test, chi-square, or Fisher exact test where appropriate. Outcome odds ratios (OR) including 95% confidence intervals (CIs) were generated via logistic regression, with prespecified adjustments made for maternal age, body mass index, and third trimester diagnosis based on previously reported risk factors for admission.⁵ $P < .05$ or confidence interval not including 1 were considered significant. Data analysis was performed using R (R Core Team, Vienna, Austria).

Results

Among 1186 patients testing positive for SARS-CoV-2, 141 previously immunized patients and 281 admitted at diagnosis were excluded from analysis. Of the 764 included patients, 88 (12%) patients received REGEN-COV infusion compared with 676 unexposed patients. No baseline differences were observed between the groups, including age, obesity, third trimester diagnosis, or COVID-19 Risk of Complications Score. The primary outcome was similar, with 1.2% of untreated and 1.1% of REGEN-COV patients being subsequently hospitalized for COVID-19 (adjusted OR, 0.86; 95% CI, 0.10–7.11; Table). The secondary outcomes were likewise similar, with no adverse events reported for REGEN-COV administration. Analysis limited to high-risk patients was precluded by low numbers, although of the untreated patients, 2 of 54 (3.7%) ultimately required admission owing to COVID-19, whereas none of the 8 treated patients required subsequent admission. (Author)

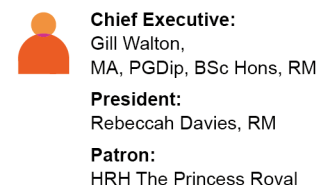
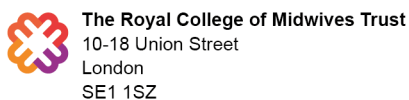
2022-09547

Temporal Trend of COVID-19 Clinical Severity and the Ethnic/Racial Disparity: A Report from the Maryland Study

Group. Cojocaru L, Pahlavan A, Tadbiri H, et al (2023), American Journal of Perinatology vol 40, no 2, January 2023, pp 115-121

Objectives This study aimed to evaluate the temporal trend of novel coronavirus disease 2019 (COVID-19) symptoms

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and severity of clinical outcomes among pregnant women over a calendar year in the State of Maryland and compare clinical outcomes between different ethnic and racial groups.

Study Design We conducted a retrospective, multicenter observational study of the temporal trend of COVID-19 clinical presentation during pregnancy in the State of Maryland. We reviewed consecutive charts of adult pregnant females, aged 18 to 55 years, with laboratory-confirmed severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2) infection between March 1, 2020, and February 28, 2021, and managed within the University of Maryland Medical System and Johns Hopkins Medicine. We excluded cases with insufficient data for assessing the COVID-19 diagnosis, pregnancy status, or clinical outcomes. We evaluated the evolution of COVID-19 symptoms at the time of presentation. Also, we compared COVID-19 infection rate, hospitalization rate, oxygen use, and intensive care unit (ICU) admission rates between different ethnic and racial groups.

Results We included 595 pregnant women with laboratory-confirmed COVID-19 over the study period. The prevalence of respiratory and systemic symptoms decreased over time with incidence rate ratios (IRRs) of 0.91 per month (95% confidence interval [CI]: 0.88–0.95) and 0.87 per month (95% CI: 0.83–0.95), respectively. The prevalence of hospitalization, O2 requirement, and ICU admission decreased over time with IRRs of 0.86 per month (95% CI: 0.82–0.91), 0.91 per month (95% CI: 0.84–0.98), and 0.70 per month (95% CI: 0.57–0.85), respectively. The Hispanic and Black populations had a higher COVID-19 infection rate and hospitalization rate than the non-Hispanic White population ($p = 0.004$, $p < 0.001$, and $p < 0.001$, respectively).

Conclusion Understanding the concepts of viral evolution could potentially help the fight against pandemics like COVID-19. Moreover, this might improve the knowledge of how pandemics affect disadvantaged populations and help close the gap in health care inequities. (Author)

2022-09514

Characteristics and Outcomes of Pregnant Women with Severe Acute Respiratory Syndrome Coronavirus 2

(SARS-CoV-2) in New York City: A Matched Cohort Study. Khoury RS, Fazzari M, Lambert C, et al (2022), American Journal of Perinatology vol 39, no 12, September 2022, pp 1261-1268


Objective The aim of this study was to examine the association between severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection and preterm birth, cesarean birth, and composite severe maternal morbidity by studying women with and without SARS-CoV-2 infection at the time of delivery hospitalization from similar residential catchment areas in New York City.

Study Design This was a retrospective cohort study of pregnant women with laboratory-confirmed or laboratory-denied SARS-CoV-2 on nasopharyngeal swab under universal testing policies at the time of admission who gave birth between March 13 and May 15, 2020, at two New York City medical centers. Demographic and clinical data were collected and follow-up was completed on May 30, 2020. Groups were compared for the primary outcome and preterm birth, in adjusted (for age, race/ethnicity, nulliparity, body mass index) and unadjusted analyses.


Results Among this age-matched cohort, 164 women were positive and 247 were negative for SARS-CoV-2. Of the positive group, 52.4% were asymptomatic and 1.2% had critical coronavirus disease 2019 (COVID-19). The groups did not differ by race and ethnicity, body mass index, or acute or chronic comorbidities. Women with SARS-CoV-2 were more likely to be publicly insured. Preterm birth, cesarean birth, and severe maternal morbidity did not differ between groups. Babies born to women with SARS-CoV-2 were more likely to have complications of prematurity or low birth weight (7.7 vs. 2%, $p = 0.01$).

Conclusion Preterm and cesarean birth did not differ between women with and without SARS-CoV-2 across disease severity in adjusted and unadjusted analysis among this cohort during the pandemic peak in New York City. (Author)

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2022-09513

Multisystem Inflammatory Syndrome in Neonates following Maternal SARS-CoV-2 COVID-19 Infection.

Lakshminrusimha S, Hudak ML, Dimitriades VR, et al (2022), American Journal of Perinatology vol 39, no 11, August 2022, pp 1166-1171

No abstract available.

2022-09351

Challenges and opportunities for perinatal health services in the COVID-19 pandemic: a qualitative study with perinatal healthcare professionals. Moltrecht B, de Cassan S, Rapa E, et al (2022), BMC Health Services Research vol 22, no 1026, 12 August 2022

Background

Perinatal healthcare professionals (PHCPs) provide essential support to all parents in the perinatal period, including young parents aged 16–24, who are at an increased risk of morbidity and mortality. Little is known about the impact of COVID-19 restrictions on the provision of perinatal services, and on perinatal healthcare professionals, caring for young parents in the UK.

Methods

A UK based qualitative study using semi-structured interviews with perinatal healthcare professionals (n = 17). Data were analysed using thematic analysis.

Results

Two themes were identified describing perinatal healthcare professionals' perceptions of providing care to young parents during the pandemic. Perinatal healthcare professionals perceived that young parents' needs were amplified by the pandemic and that pandemic-related changes to the service, such as the use of telemedicine to replace face-to-face interactions, did not manage to successfully mitigate the increased feelings of anxiety and isolation experienced by young parents. Concerns were raised by perinatal healthcare professionals that these changes reduced young parent's access to vital support for themselves and their child and may contribute to exacerbating pre-existing inequalities.

Conclusions

This study provides insight into the impact of the COVID-19 pandemic on the provision of perinatal care to young parents. Perinatal mental health professionals felt these negative impacts could be overcome by using a blended approach of technology and face-to-face interactions allowing regular contact with young parents and facilitating the exchange of vital information, while maintaining access to opportunities for social interactions with other parents. Findings from this study could be used to future-proof services against further COVID-19 restrictions. (Author)

Full URL: <https://doi.org/10.1186/s12913-022-08427-y>

2022-09330

Clinical presentation, pregnancy complications, and outcomes of pregnant women with COVID-19 during the Omicron-dominant third wave in Mumbai, India. Mahajan NN, Kesarwani SN, Salunke C, et al (2022), International Journal of Gynecology & Obstetrics vol 159, no 3, December 2022, pp 968-973

Objective

To study clinical presentation, disease severity, pregnancy complications, and maternal outcomes in women affected with coronavirus disease 2019 (COVID-19) during the third wave compared with the first and second waves of COVID-19.

Methods

A retrospective, observational cohort study was conducted among 2058 pregnant and postpartum women with COVID-19 admitted during three wave periods at a tertiary care COVID-19-dedicated hospital.

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Results

The number of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) -infected pregnant and postpartum women with symptoms of COVID-19 was four times higher during the third wave compared with the first (odds ratio [OR] 4.6, 95% confidence interval [CI] 3.5–6.0, $P < 0.001$). There was a significantly lower proportion of pregnant and postpartum women with moderate to severe COVID-19 during the third wave (0.6%, 2/318) compared with those during the first wave (2.4%, 27/1143, $P < 0.001$) and second wave (14.4%, 86/597, $P < 0.001$). The intensive care/high dependency unit admissions during the third wave were significantly lower (2.5%, 8/318) than during the second wave (14.7%, 88/597; OR 0.2, 95% CI 0.1–0.3, $P < 0.001$) but similar to the first wave (2.4%, 27/1143).

Conclusions

Decreased severity of COVID-19, reduced maternal mortality, and morbidity were reported in the third wave compared with the first wave and second wave of COVID-19 in the Mumbai Metropolitan Region, India.

Trial Registration

The study is registered with the Clinical Trial Registry of India (Registration no: CTRI/2020/05/025423). (Author)

Full URL: <https://doi.org/10.1002/ijgo.14348>

2022-09325

Should pregnant women be screened for SARS-CoV-2 infection? A prospective multicenter cohort study. Yefet E, Massalha M, Alter A, et al (2023), International Journal of Gynecology & Obstetrics vol 160, no 1, January 2023, pp 161-166

Objective

Coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), ranges from asymptomatic to severe infection. We aimed to compare the prevalence of COVID-19 in asymptomatic pregnant versus nonpregnant women in order to establish recommendations for a COVID-19 screening strategy.

Methods

A prospective multicenter cohort study was conducted. Asymptomatic pregnant or nonpregnant women after March 2020 (the time when COVID-19 was first detected in north Israel) were tested for SARS-CoV-2 using nasopharyngeal reverse transcription polymerase chain reaction test, anti-nucleocapsid IgG, and anti-spike IgG. Diagnosis was made if at least one test result was positive. Pregnant women were tested between 34 and 42 weeks, mostly at birth.

Results

Among the 297 participating women, 152 were pregnant and 145 were nonpregnant. The prevalence of asymptomatic COVID-19 was similar between the groups (4 [2.6%] and 8 [5.5%], respectively; $P = 0.2$). All women with COVID-19 delivered healthy appropriate-for-gestational-age babies without malformations, at term.

Conclusions

The rate of asymptomatic COVID-19 in pregnant women is low and comparable to the rate among nonpregnant women. Pregnancy outcomes are favorable. Future screening programs should consider that one of 25 screened asymptomatic women will be positive. (Author)

Full URL: <https://doi.org/10.1002/ijgo.14359>

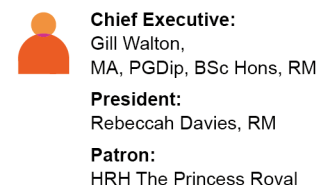
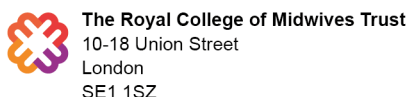
2022-09120

Patient and family experience with telemedicine and in-person pediatric and obstetric ambulatory encounters throughout 2020, during the COVID-19 epidemic: the distance effect. Marques S, Cruz JAW, da Cunha MAVC, et al (2022), BMC Health Services Research vol 22, no 659, 16 May 2022

Background

South Africa has a high burden of perinatal common mental disorders (CMD), such as depression and anxiety, as well

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as high levels of poverty, food insecurity and domestic violence, which increases the risk of CMD. Yet public healthcare does not include routine detection and treatment for these disorders. This pilot study aims to evaluate the implementation outcomes of a health systems strengthening (HSS) intervention for improving the quality of care of perinatal women with CMD and experiences of domestic violence, attending public healthcare facilities in Cape Town.

Methods

Three antenatal care facilities were purposively selected for delivery of a HSS programme consisting of four components: (1) health promotion and awareness raising talks delivered by lay healthcare workers; (2) detection of CMD and domestic violence by nurses as part of routine care; (3) referral of women with CMD and domestic violence; and (4) delivery of structured counselling by lay healthcare workers in patients' homes. Participants included healthcare workers tasked with delivery of the HSS components, and perinatal women attending the healthcare facilities for routine antenatal care. This mixed methods study used qualitative interviews with healthcare workers and pregnant women, a patient survey, observation of health promotion and awareness raising talks, and a review of several documents, to evaluate the acceptability, appropriateness, feasibility, adoption, fidelity of delivery, and fidelity of receipt of the HSS components. Thematic analysis was used to analyse the qualitative interviews, while the quantitative findings for adoption and fidelity of receipt were reported using numbers and proportions.

Results

Healthcare workers found the delivery and content of the HSS components to be both acceptable and appropriate, while the feasibility, adoption and fidelity of delivery was poor. We demonstrated that the health promotion and awareness raising component improved women's attitudes towards seeking help for mental health conditions. The detection, referral and treatment components were found to improve fidelity of receipt, evidenced by an increase in the proportion of women undergoing routine detection and referral, and decreased feelings of distress in women who received counselling. However, using a task-sharing approach did not prove to be feasible, as adding additional responsibilities to already overburdened healthcare workers roles resulted in poor fidelity of delivery and adoption of all the HSS components.

Conclusions

The acceptability, appropriateness and fidelity of receipt of the HSS programme components, and poor feasibility, fidelity of delivery and adoption suggest the need to appoint dedicated, lay healthcare workers to deliver key programme components, at healthcare facilities, on the same day. (Author)

Full URL: <https://doi.org/10.1186/s12913-022-08037-8>

2022-09116

Barriers and facilitators of access to maternal, newborn and child health services during the first wave of COVID-19 pandemic in Nigeria: findings from a qualitative study. Akaba GO, Dirisu O, Okunade KS, et al (2022), BMC Health Services Research vol 22, no 611, 6 May 2022

Background

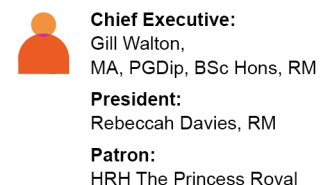
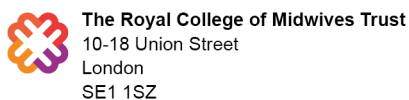
COVID-19 pandemic may have affected the utilization of maternal and newborn child health services in Nigeria but the extent, directions, contextual factors at all the levels of healthcare service delivery in Nigeria is yet to be fully explored.

The objective of the study was to explore the barriers and facilitators of access to MNCH services during the first wave of COVID-19 pandemic in Nigeria.

Methods

A qualitative study was conducted among different stakeholder groups in 18 public health facilities in Nigeria between May and July, 2020. In-depth interviews were conducted among 54 study participants (service users, service providers and policymakers) selected from across the three tiers of public health service delivery system in Nigeria (primary health centers, secondary health centers and tertiary health centers). Coding of the qualitative data and identification

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of themes from the transcripts were carried out and thematic approach was used for data analyses.

Results

Barriers to accessing MNCH services during the first wave of COVID-19-pandemic in Nigeria include fear of contracting COVID-19 infection at health facilities, transportation difficulties, stigmatization of sick persons, lack of personal protective equipment (PPE) /medical commodities, long waiting times at hospitals, shortage of manpower, lack of preparedness by health workers, and prioritization of essential services.

Enablers to access include the COVID-19 non-pharmacological measures instituted at the health facilities, community sensitization on healthcare access during the pandemic, and alternative strategies for administering immunization service at the clinics.

Conclusion

Access to MNCH services were negatively affected by lockdown during the first wave of COVID-19 pandemic in Nigeria particularly due to challenges resulting from restrictions in movements which affected patients/healthcare providers ability to reach the hospitals as well as patients' ability to pay for health care services. Additionally, there was fear of contracting COVID-19 infection at health facilities and the health systems inability to provide enabling conditions for sustained utilization of MNCH services. There is need for government to institute alternative measures to halt the spread of diseases instead of lockdowns so as to ensure unhindered access to MNCH services during future pandemics. This may include immediate sensitization of the general public on modes of transmission of any emergent infectious disease as well as training of health workers on emergency preparedness and alternative service delivery models. (Author)

Full URL: <https://doi.org/10.1186/s12913-022-07996-2>

2022-09009

Short-term Pregnancy Outcomes After Nirmatrelvir–Ritonavir Treatment for Mild-to-Moderate Coronavirus Disease

2019 (COVID-19). Loza A, Farias R, Gavin N, et al (2022), *Obstetrics & Gynecology* Vol 140, no 3, September 2022, pp 447-449

This is a descriptive study of pregnant patients who received nirmatrelvir–ritonavir therapy from April 16, 2022, through May 18, 2022. Patients were eligible to receive nirmatrelvir–ritonavir if they were diagnosed with mild-to-moderate coronavirus disease 2019 (COVID-19) with symptom onset within 5 days, did not require oxygen therapy or hospital admission, and had no contraindications to nirmatrelvir–ritonavir. During the study time frame, 11 patients were identified as candidates for nirmatrelvir–ritonavir treatment. All patients agreed to nirmatrelvir–ritonavir treatment after a telehealth consultation; seven patients completed the treatment. All patients who received nirmatrelvir–ritonavir experienced symptom resolution without the need for additional care. All but one patient tolerated nirmatrelvir–ritonavir without immediate adverse effects, and no adverse fetal or neonatal effects were observed. (Author)

2022-08845

Third trimester placentitis: an under-reported complication of SARS-CoV-2 infection. Sichitiu J, Bourgon N, Guillemot T, et al (2022), *American Journal of Obstetrics & Gynecology MFM* vol 4, no 6, November 2022, 100703

SARS-CoV-2 related placentitis shows distinctive histological characteristics and its impact on perinatal outcomes is increasingly coming under scrutiny. We present two such cases in the third trimester, following mild maternal clinical symptoms and associated with maternal coagulopathy, reduced fetal movements and non-reassuring fetal heart rate tracing. Both cases resulted in emergency cesarean deliveries. Our cases and a review of the literature highlight that SARS-CoV-2 undermines placental function and thus greatly impacts late-term pregnancies, even in the absence of severe systemic disease. (Author)

2022-08836

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Characteristics and treatment of hospitalized pregnant women with COVID-19. Sekkarie A, Woodruff R, Whitaker M, et al (2022), American Journal of Obstetrics & Gynecology MFM vol 4, no 6, November 2022, 100715

BACKGROUND

Pregnant women less frequently receive COVID-19 vaccination and are at increased risk for adverse pregnancy outcomes from COVID-19.

OBJECTIVE

This study aimed to first, describe the vaccination status, treatment, and outcomes of hospitalized, symptomatic pregnant women with COVID-19, and second, estimate whether treatment differs by pregnancy status among treatment-eligible (ie, requiring supplemental oxygen per National Institutes of Health guidelines at the time of the study) women.

STUDY DESIGN

From January to November 2021, the COVID-19-Associated Hospitalization Surveillance Network completed medical chart abstraction for a probability sample of 2715 hospitalized women aged 15 to 49 years with laboratory-confirmed SARS-CoV-2 infection. Of these, 1950 women had symptoms of COVID-19 on admission, and 336 were pregnant. We calculated weighted prevalence estimates of demographic and clinical characteristics, vaccination status, and outcomes among pregnant women with symptoms of COVID-19 on admission. We used propensity score matching to estimate prevalence ratios and 95% confidence intervals of treatment-eligible patients who received remdesivir or systemic steroids by pregnancy status.

RESULTS

Among 336 hospitalized pregnant women with symptomatic COVID-19, 39.6% were non-Hispanic Black, 24.8% were Hispanic or Latino, and 61.9% were aged 25 to 34 years. Among those with known COVID-19 vaccination status, 92.9% were unvaccinated. One-third (32.7%) were treatment-eligible. Among treatment-eligible pregnant women, 74.1% received systemic steroids and 61.4% received remdesivir. Among those that were no longer pregnant at discharge (n=180), 5.4% had spontaneous abortions and 3.5% had stillbirths. Of the 159 live births, 29.0% were preterm. Among a propensity score-matched cohort of treatment-eligible hospitalized women of reproductive age, pregnant women were less likely than nonpregnant women to receive remdesivir (prevalence ratio, 0.82; 95% confidence interval, 0.69–0.97) and systemic steroids (prevalence ratio, 0.80; 95% confidence interval, 0.73–0.87).

CONCLUSION

Most hospitalized pregnant patients with symptomatic COVID-19 were unvaccinated. Hospitalized pregnant patients were less likely to receive recommended remdesivir and systemic steroids compared with similar hospitalized nonpregnant women. Our results underscore the need to identify opportunities for improving COVID-19 vaccination, implementation of treatment of pregnant women, and the inclusion of pregnant women in clinical trials. (Author)

2022-08803

Experiences, concerns, and needs of pregnant and postpartum women during the Covid-19 pandemic in Cyprus: a cross-sectional study. Hadjigeorgiou E, Vogazianos P, Christofi M-D, et al (2022), BMC Pregnancy and Childbirth vol 22, no 685, 5 September 2022

Background

The current COVID-19 pandemic is a unique stressor with potentially challenging and negative consequences on the experiences of pregnant and postpartum women. International literature highlights the pandemic's negative impact on women's perinatal experiences. This is the first study in the scientific literature reporting on the impact of the COVID-19 pandemic, on the perinatal experiences of a large sample of women living in Cyprus.

Aim

To examine the impact of the COVID-19 pandemic on the experiences, concerns and needs of pregnant and postpartum women in Cyprus.

Method

The cross-sectional study was conducted from July 2020 to January 2021. A total of 695 women, 355 pregnant and 340 postpartum women (with infants up to 6 months of age), residing in Cyprus were surveyed.

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Results

The great majority of the participants (80.9%) perceived the impact of the COVID-19 pandemic on their life as negative. The greatest sources of stress were identified and quantified for their impact on the participants. Our findings indicate that 74.1% of the pregnant women were concerned about changes due to COVID-19 measures impacting the presence of their family at the time of delivery, 57.2% about their newborn's health, and 43.1% about changes related to perinatal care. Postpartum women's concerns were mainly related to the welfare and health of their child (70.3%), whilst half of them (49.1%) expressed concerns about how they were going to care for their baby because of pandemic-related changes. Qualitative data revealed emerging themes as the basis of the pregnant and postpartum women's concerns and needs.

Conclusions

The COVID-19 pandemic and the associated imposed measures and restrictions had adverse effects on pregnant and postpartum women's perinatal experiences in Cyprus. The women's concerns emphasized the need for the development of specialized, evidenced-based support systems which are essential particularly in pandemic-like situations, when pregnant and postpartum women are more vulnerable to isolation. (Author)

Full URL: <https://doi.org/10.1186/s12884-022-05017-y>

2022-08616

Pregnancy and neonatal outcomes of COVID-19: The PAN-COVID study. Mullins E, Perry A, Banerjee J, et al (2022), European Journal of Obstetrics & Gynecology and Reproductive Biology vol 276, September 2022, pp 161-167

Objective

To assess perinatal outcomes for pregnancies affected by suspected or confirmed SARS-CoV-2 infection.

Methods

Prospective, web-based registry. Pregnant women were invited to participate if they had suspected or confirmed SARS-CoV-2 infection between 1st January 2020 and 31st March 2021 to assess the impact of infection on maternal and perinatal outcomes including miscarriage, stillbirth, fetal growth restriction, pre-term birth and transmission to the infant.

Results

Between April 2020 and March 2021, the study recruited 8239 participants who had suspected or confirmed SARS-CoV-2 infection episodes in pregnancy between January 2020 and March 2021.

Maternal death affected 14/8197 (0.2%) participants, 176/8187 (2.2%) of participants required ventilatory support.

Pre-eclampsia affected 389/8189 (4.8%) participants, eclampsia was reported in 40/8024 (0.5%) of all participants.

Stillbirth affected 35/8187 (0.4%) participants. In participants delivering within 2 weeks of delivery 21/2686 (0.8%)

were affected by stillbirth compared with 8/4596 (0.2%) delivering ≥ 2 weeks after infection (95% CI 0.3–1.0). SGA affected 744/7696 (9.3%) of livebirths, FGR affected 360/8175 (4.4%) of all pregnancies.

Pre-term birth occurred in 922/8066 (11.5%), the majority of these were indicated pre-term births, 220/7987 (2.8%)

participants experienced spontaneous pre-term births. Early neonatal deaths affected 11/8050 livebirths. Of all

neonates, 80/7993 (1.0%) tested positive for SARS-CoV-2.

Conclusions

Infection was associated with indicated pre-term birth, most commonly for fetal compromise. The overall proportions of women affected by SGA and FGR were not higher than expected, however there was the proportion affected by stillbirth in participants delivering within 2 weeks of infection was significantly higher than those delivering ≥ 2 weeks after infection. We suggest that clinicians' threshold for delivery should be low if there are concerns with fetal movements or fetal heart rate monitoring in the time around infection.

The proportion affected by pre-eclampsia amongst participants was not higher than would be expected, although we report a higher than expected proportion affected by eclampsia. There appears to be no effect on birthweight or congenital malformations in women affected by SARS-CoV-2 infection in pregnancy and neonatal infection is uncommon.

This study reflects a population with a range of infection severity for SARS-CoV-2 in pregnancy, generalisable to whole

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obstetric populations. (Author)

Full URL: <https://doi.org/10.1016/j.ejogrb.2022.07.010>

2022-08600

ABO blood group and COVID-19 in pregnant women: A case–control study. Alarcón CGT, Gonzalez ODC, López CS, et al (2022), *International Journal of Gynecology & Obstetrics* vol 159, no 3, December 2022, pp 985-987

Study comparing ABO blood group distribution between pregnant women with or without COVID-19. Blood group ABO did not affect COVID-19 susceptibility, severity, or death. (Author)

Full URL: <https://doi.org/10.1002/ijgo.14354>

2022-08565

First- or second-trimester SARS-CoV-2 infection and subsequent pregnancy outcomes. Hughes BL, Sandoval GJ, Metz TD, et al (2023), *American Journal of Obstetrics & Gynecology (AJOG)* vol 228, no 2, February 2023, pp 226.e1-226.e9

Background

SARS-CoV-2 infection during pregnancy is associated with adverse pregnancy outcomes, including fetal death and preterm birth. It is not known whether that risk occurs only during the time of acute infection or whether the risk persists later in pregnancy.

Objective

This study aimed to evaluate whether the risk of SARS-CoV-2 infection during pregnancy persists after an acute maternal illness.

Study Design

A retrospective cohort study of pregnant patients with and without SARS-CoV-2 infection delivering at 17 hospitals in the United States between March 2020 and December 2020. Patients experiencing a SARS-CoV-2–positive test at or before 28 weeks of gestation with a subsequent delivery hospitalization were compared with those without a positive SARS-CoV-2 test at the same hospitals with randomly selected delivery days during the same period. Deliveries occurring at <20 weeks of gestation in both groups were excluded. The study outcomes included fetal or neonatal death, preterm birth at <37 weeks of gestation and <34 weeks of gestation, hypertensive disorders of pregnancy (HDP), any major congenital malformation, and size for gestational age of <5th or <10th percentiles at birth based on published standards. HDP that were collected included HDP and preeclampsia with severe features, both overall and with delivery at <37 weeks of gestation.

Results

Of 2326 patients who tested positive for SARS-CoV-2 during pregnancy and were at least 20 weeks of gestation at delivery from March 2020 to December 2020, 402 patients (delivering 414 fetuses or neonates) were SARS-CoV-2 positive before 28 weeks of gestation and before their admission for delivery; they were compared with 11,705 patients without a positive SARS-CoV-2 test. In adjusted analyses, those with SARS-CoV-2 before 28 weeks of gestation had a subsequent increased risk of fetal or neonatal death (2.9% vs 1.5%; adjusted relative risk, 1.97; 95% confidence interval, 1.01–3.85), preterm birth at <37 weeks of gestation (19.6% vs 13.8%; adjusted relative risk, 1.29; 95% confidence interval, 1.02–1.63), and HDP with delivery at <37 weeks of gestation (7.2% vs 4.1%; adjusted relative risk, 1.74; 95% confidence interval, 1.19–2.55). There was no difference in the rates of preterm birth at <34 weeks of gestation, any major congenital malformation, and size for gestational age of <5th or <10th percentiles. In addition, there was no significant difference in the rate of gestational hypertension overall or preeclampsia with severe features.

Conclusion

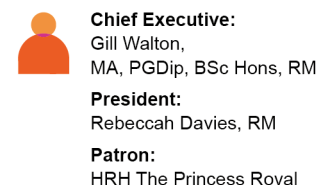
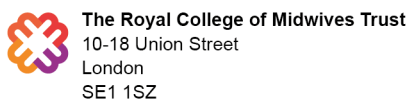
There was a modest increase in the risk of adverse pregnancy outcomes after SARS-CoV-2 infection. (Author)

Full URL: <https://doi.org/10.1016/j.ajog.2022.08.009>

2022-08547

Preterm birth among pregnant persons with severe acute respiratory syndrome Coronavirus 2 infection. Newton SM, Reeves EL, Olsen EO'M, et al (2022), *Journal of Perinatology* vol 42, no 10, October 2022, pp 1328-1337

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Objective

We examined the relationship between trimester of SARS-CoV-2 infection, illness severity, and risk for preterm birth.

Study design

We analyzed data for 6336 pregnant persons with SARS-CoV-2 infection in 2020 in the United States. Risk ratios for preterm birth were calculated for illness severity, trimester of infection, and illness severity stratified by trimester of infection adjusted for age, selected underlying medical conditions, and pregnancy complications.

Result

Pregnant persons with critical COVID-19 or asymptomatic infection, compared to mild COVID-19, in the second or third trimester were at increased risk of preterm birth. Pregnant persons with moderate-to-severe COVID-19 did not show increased risk of preterm birth in any trimester.

Conclusion

Critical COVID-19 in the second or third trimester was associated with increased risk of preterm birth. This finding can be used to guide prevention strategies, including vaccination, and inform clinical practices for pregnant persons.

(Author)

Full URL: <https://doi.org/10.1038/s41372-022-01467-6>

2022-08472

Socioeconomic Disparity in Birth Rates During the COVID-19 Pandemic in New York City. Silverman ME, Sami TJ, Kangwa TS, et al (2022), *Journal of Women's Health* Vol 31, no 8, August 2022, pp 1113-1119

Background: The differential impact of the coronavirus disease 2019 (COVID-19) pandemic across race, ethnicity, and socioeconomic status remains poorly understood. While recent explorations into birthrates during the pandemic have revealed significant declines, how birthrates may have differed between racial and socioeconomic subgroups during the pandemic remains to be detailed.

Methods: Using electronic health records from a large hospital network in New York serving a racially and socioeconomically diverse population, we explored birthrates associated with conceptions that occurred during the COVID-19 pandemic lockdown for demographic and obstetric differences.

Results: Two thousand five hundred twenty-three unique patient deliveries corresponded with conceptions that occurred during the COVID-19 pandemic lockdown in New York. Compared to the same period the previous year, there was a 22.85% decrease in births. Explorations into differences in birthrates by socioeconomic status revealed that much of the decline could be explained by fewer births among individuals living in higher socioeconomic status as opposed to individuals living in urban economic poverty [$\chi^2(n = 5588) = 18.35, p < 0.01$].

Conclusion: On March 22, 2020, New York instituted a prohibition of all nonessential social gatherings and the closure of all nonessential businesses. Although the full impact of the COVID-19 pandemic on reproductive health and outcomes remains largely unknown, the decreased birthrate associated with the initial COVID-19 wave in New York was not entirely unexpected. While the mechanisms that drive health disparities are complex and multifactorial, most of the decrease occurred among those living in higher socioeconomic status. This finding has important implications for understanding health behaviors and disparities among minorities living in low socioeconomic status. (Author)

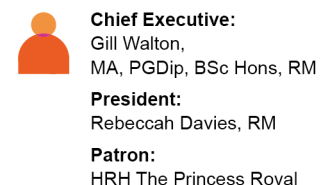
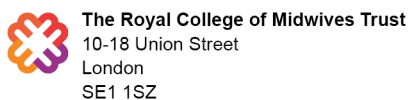
2022-08434

Gestational SARS-CoV-2 infection is associated with placental expression of immune and trophoblast genes. Lesieur C, Jessel RH, Ohrn S, et al (2022), *Placenta* vol 126, August 2022, pp 125-132

Introduction

Maternal SARS-CoV-2 infection during pregnancy is associated with adverse pregnancy outcomes and can have effects

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on the placenta, even in the absence of severe disease or vertical transmission to the fetus. This study aimed to evaluate histopathologic and molecular effects in the placenta after SARS-CoV-2 infection during pregnancy.

Methods

We performed a study of 45 pregnant participants from the Generation C prospective cohort study at the Mount Sinai Health System in New York City. We compared histologic features and the expression of 48 immune and trophoblast genes in placentas delivered from 15 SARS-CoV-2 IgG antibody positive and 30 IgG SARS-CoV-2 antibody negative mothers. Statistical analyses were performed using Fisher's exact tests, Spearman correlations and linear regression models.

Results

The median gestational age at the time of SARS-CoV-2 IgG serology test was 35 weeks. Two of the IgG positive participants also had a positive RT-PCR nasal swab at delivery. 82.2% of the infants were delivered at term (≥ 37 weeks), and gestational age at delivery did not differ between the SARS-CoV-2 antibody positive and negative groups. No significant differences were detected between the groups in placental histopathology features. Differential expression analyses revealed decreased expression of two trophoblast genes (PSG3 and CGB3) and increased expression of three immune genes (CXCL10, TLR3 and DDX58) in placentas delivered from SARS-CoV-2 IgG positive participants.

Discussion

SARS-CoV-2 infection during pregnancy is associated with gene expression changes of immune and trophoblast genes in the placenta at birth which could potentially contribute to long-term health effects in the offspring. (Author)

Full URL: <https://doi.org/10.1016/j.placenta.2022.06.017>

2022-08428

COVID-19 & differential effects in twins: Insights from Placenta Pathology. Moriarty K, Yu M, Hussain N, et al (2022), *Placenta* vol 124, 24 June 2022, pp 62-66

Introduction

COVID-19 has been associated with several adverse pregnancy outcomes, including perinatal loss. Differential effects of COVID-19 in a twin pregnancy may provide unique insights into virus-placental interactions. We present a case of perinatal loss of a female fetus with survival of the male co-twin in a pregnancy complicated by COVID-19 and premature delivery.

Methods

Viral detection methods recommended by the NICHD task force were used to identify SARS-CoV-2 and its viral receptors in the placentas and fetal tissue (Antoun et al., 2020) [1]

Results

Compared with the surviving twin, we found a more severe intervillous necrosis and a relatively low detection of ACE2 membranous expression in the syncytiotrophoblasts of the female twin that succumbed.

Discussion

The interactions of SARS-CoV-2 and ACE2 at the maternal fetal interface within the placenta may play a significant role in perinatal loss, and the effects of fetal sex and gestational age at time of infection need to be explored further.

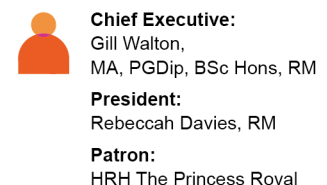
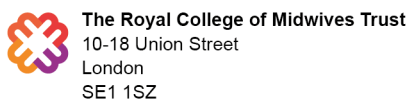
(Author)

Full URL: <https://doi.org/10.1016/j.placenta.2022.05.014>

2022-08412

Low-level SARS-CoV-2 viremia coincident with COVID placentitis and stillbirth. Mithal LB, Otero S, Simons LM, et al (2022),

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SARS-CoV-2 infection in pregnancy and COVID placentitis are associated with an increased risk of stillbirth. We sought to investigate the presence of maternal viremia in people with SARS-CoV-2 infection during pregnancy who had histologic placentitis versus those without placentitis. SARS-CoV-2 qRT-PCR was performed on plasma from 6 patients with COVID placentitis and 12 matched controls without placentitis. SARS-CoV-2 infection occurred between 4/2020–1/2021; the latency between SARS-CoV-2 diagnosis and delivery was 0–76 days. Two placentitis cases demonstrated viremia (1 stillbirth and 1 well infant), while 12/12 controls were negative. Future research may consider viremia as a possible marker of COVID placentitis. (Author)

2022-08384

Placental characteristics and risks of maternal mortality 50 years after delivery. Yeung EH, Saha A, Zhu C, et al (2022), Placenta vol 117, January 2022, pp 194-199

Introduction

Adverse pregnancy outcomes such as preterm delivery and preeclampsia are associated with a higher maternal risk for subsequent cardiovascular disease (CVD) and all-cause mortality. While such pregnancy conditions are related to abnormal placentation, little research has investigated whether pathologic placental measures could serve as a risk factor for future CVD mortality in mothers.

Methods

Longitudinal study of 33,336 women from the Collaborative Perinatal Project (CPP; 1959–1966) linked to mortality information through December 2016. Pathologists took extensive morphological and histopathological measures. Apart from assessing associations with morphological features, we derived an overall composite score and specific inflammation-related, hemorrhage-related, and hypoxia-related pathologic placenta index scores. Cox regression estimated hazard ratios (HR) and 95% confidence intervals (CI) for mortality adjusting for covariates.

Results

Thirty-nine percent of women died with mean (standard deviation, SD) time to death of 39 (12) years. Mean (SD) placental weight and birthweight were 436 g (98) and 3156 g (566), respectively. Placenta-to-birthweight ratio was associated with all-cause mortality (adjusted HR 1.03: 1.01, 1.05 per SD in ratio). In cause-specific analyses, it was significantly associated with respiratory (HR 1.06), dementia (HR: 1.10) and liver (HR 1.04) related deaths. CVD, cancer, diabetes and kidney related deaths also tended to increase, whereas infection related deaths did not (HR 0.94; 0.83, 1.06). Placental measures of thickness, diameters, and histopathological measures grouped by inflammatory, hemorrhagic, or hypoxic etiology were not associated with mortality.

Discussion

Placental weight in relation to birthweight was associated with long-term maternal mortality but other histopathologic or morphologic features were not. (Author)

Full URL: <https://doi.org/10.1016/j.placenta.2021.12.014>

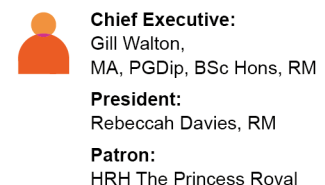
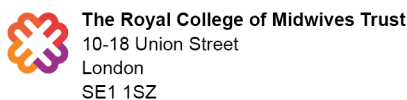
2022-08383

Placental SARS-CoV-2 distribution correlates with level of tissue oxygenation in COVID-19-associated necrotizing histiocytic intervillitis/perivillous fibrin deposition. Mao Q, Chu S, Shapiro S, et al (2022), Placenta vol 117, January 2022, pp 187-193

Introduction

Recent evidence supports the – rare – occurrence of vertical transplacental SARS-CoV-2 transmission. We previously determined that placental expression of angiotensin-converting enzyme 2 (ACE2), the SARS-CoV-2 receptor, and associated viral cell entry regulators is upregulated by hypoxia. In the present study, we utilized a clinically relevant model of SARS-CoV-2-associated chronic histiocytic intervillitis/massive perivillous fibrin deposition (CHIV/MPFVD) to test the hypothesis that placental hypoxia may facilitate placental SARS-CoV-2 infection.

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Methods

We performed a comparative immunohistochemical and/or RNAscope in-situ hybridization analysis of carbonic anhydrase IX (CAIX, hypoxia marker), ACE2 and SARS-CoV-2 expression in free-floating versus fibrin-encased chorionic villi in a 20-weeks' gestation placenta with SARS-CoV-2-associated CHIV/MPVFD.

Results

The levels of CAIX and ACE2 immunoreactivity were significantly higher in trophoblastic cells of fibrin-encased villi than in those of free-floating villi, consistent with hypoxia-induced ACE2 upregulation. SARS-CoV-2 showed a similar preferential localization to trophoblastic cells of fibrin-encased villi.

Discussion

The localization of SARS-CoV-2 to hypoxic, fibrin-encased villi in this placenta with CHIV/MPVFD suggests placental infection and, therefore, transplacental SARS-CoV-2 transmission may be promoted by hypoxic conditions, mediated by ACE2 and similar hypoxia-sensitive viral cell entry mechanisms. Understanding of a causative link between placental hypoxia and SARS-CoV-2 transmissibility may potentially lead to the development of alternative strategies for prevention of intrauterine COVID-19 transmission. (Author)

Full URL: <https://doi.org/10.1016/j.placenta.2021.12.002>

2022-08381

Stalling SARS-CoV2 infection with stem cells: can regenerating perinatal tissue mesenchymal stem cells offer a multi-tiered therapeutic approach to COVID-19?. Warrior S, Sundaram SM, Varier L, et al (2022), Placenta vol 117, January 2022, pp 161-168

The emergence of COVID-19 has created a major health crisis across the globe. Invasion of SARS-CoV-2 into the lungs causes acute respiratory distress syndrome (ARDS) that result in the damage of lung alveolar epithelial cells. Currently, there is no standard treatment available to treat the disease and the resultant lung scarring is irreversible even after recovery. This has prompted researchers across the globe to focus on developing new therapeutics and vaccines for the treatment and prevention of COVID-19. Mesenchymal stem cells (MSCs) have emerged as an efficient drug screening platform and MSC-derived organoids has found applications in disease modeling and drug discovery. Perinatal tissue derived MSC based cell therapies have been explored in the treatment of various disease conditions including ARDS because of their enhanced regenerative and immunomodulatory properties. The multi-utility properties of MSCs have been described in this review wherein we discuss the potential use of MSC-derived lung organoids in screening of novel therapeutic compounds for COVID-19 and also in disease modeling to better understand the pathogenesis of the disease. This article also summarizes the rationale behind the development of MSC-based cell- and cell-free therapies and vaccines for COVID-19 with a focus on the current progress in this area. With the pandemic raging, an important necessity is to develop novel treatment strategies which will not only alleviate the disease symptoms but also avoid any off-target effects which could further increase post infection sequelae. Naturally occurring mesenchymal stem cells could be the magic bullet which fulfil these criteria. (Author)

Full URL: <https://doi.org/10.1016/j.placenta.2021.12.005>

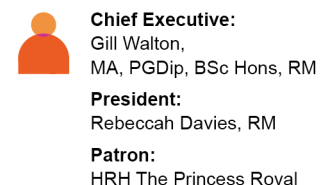
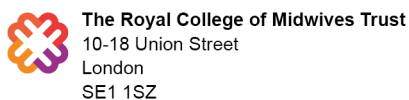
2022-08378

Meta-analysis on COVID-19-pregnancy-related placental pathologies shows no specific pattern. Suhren J-T, Meinardus A, Hussein K, et al (2022), Placenta vol 117, January 2022, pp 72-77

Coronavirus disease 2019 (COVID-19) pneumonia rarely occurs in pregnant women. Case reports indicate that fibrin and lymphohistiocytic lesions in placentas may be typical. However, a meta-analysis to clarify whether there is a COVID-19-associated pattern of placental lesions has not yet been conducted.

Systematic literature search with meta-analysis of publications on 10 or more cases of pregnancy with SARS-CoV-2 infection and placenta examination (30 publications from 2019 to 2021; 1452 placenta cases) was performed.

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The meta-analysis did not reveal any COVID-19-specific placenta changes. The incidence of both vascular and inflammatory lesions was mainly comparable to that of non-COVID-19 pregnancies.

Transplacental viral transmission is very rare and there are no typical placental changes. The most important prognostic factor seems to be maternal-fetal hypoxia in the context of pneumonia. (Author)

Full URL: <https://doi.org/10.1016/j.placenta.2021.10.010>

2022-08376

Placental deficiency during maternal SARS-CoV-2 infection. Celik E, Vatanserver C, Ozcan G, et al (2022), *Placenta* vol 117, January 2022, pp 47-56

Introduction

Maternal anti-SARS-CoV-2 Spike antibodies can cross the placenta during pregnancy, and neonates born to infected mothers have acquired antibodies at birth. Few studies reported data on the histopathological changes of the placenta during infection and placental infection. SARS-CoV-2 infection may cause impaired development of the placenta, thus predisposing maternal and fetal unfavorable outcomes. The prospective study aims to evaluate the risk of vertical transmission of SARS-CoV-2 and placental passage of anti-Spike antibodies as well as the impact of clinical severity on placental structures.

Methods

This is a prospective cohort study on 30 pregnant women infected by SARS-CoV-2 with their neonates. The demographic features and pregnancy outcomes were collected. Gross and microscopic examinations of the placentas were done. Maternal and umbilical cord sera were obtained at the time of delivery. Nasopharyngeal swabs were collected from neonates immediately after birth.

Results

The concentrations of total anti-SARS-CoV-2 Spike antibodies were higher in pregnant women with moderate to severe/critical disease. The maternal total anti-SARS-CoV-2 Spike levels were correlated with those of neonatal levels. The rate of placental abnormalities is high in the mothers with severe disease, and those with positive anti-SARS-CoV-2 IgM. All neonates had negative nasopharyngeal swabs for SARS-CoV-2 infections and all placentas were negative in immunohistochemical staining for Spike protein.

Discussion

The maternally derived anti-SARS-CoV-2 Spike antibody can transmit to neonates born to infected mothers regardless of gestational age. Our results indicated that the disease severity is associated with ischemic placental pathology which may result in adverse pregnancy outcomes. (Author)

Full URL: <https://doi.org/10.1016/j.placenta.2021.10.012>

2022-08224

Comparison of Pregnancy and Birth Outcomes Before vs During the COVID-19 Pandemic. Molina RL, Tsai TC, Dai D, et al (2022), *JAMA Network Open* vol 5, no 8, August 2022, e2226531

Importance Little is known about changes in obstetric outcomes during the COVID-19 pandemic.

Objective To assess whether obstetric outcomes and pregnancy-related complications changed during the COVID-19 pandemic.

Design, Setting, and Participants This retrospective cohort study included pregnant patients receiving care at 463 US hospitals whose information appeared in the PINC AI Healthcare Database. The relative differences in birth outcomes, pregnancy-related complications, and length of stay (LOS) during the pandemic period (March 1, 2020, to April 31,

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2021) were compared with the prepandemic period (January 1, 2019, to February 28, 2020) using logistic and Poisson models, adjusting for patients' characteristics, and comorbidities and with month and hospital fixed effects.

Exposures COVID-19 pandemic period.

Main Outcomes and Measures The 3 primary outcomes were the relative change in preterm vs term births, mortality outcomes, and mode of delivery. Secondary outcomes included the relative change in pregnancy-related complications and LOS.

Results There were 849 544 and 805 324 pregnant patients in the prepandemic and COVID-19 pandemic periods, respectively, and there were no significant differences in patient characteristics between periods, including age (≥ 35 years: 153 606 [18.1%] vs 148 274 [18.4%]), race and ethnicity (eg, Hispanic patients: 145 475 [47.1%] vs 143 905 [17.9%]; White patients: 456 014 [53.7%] vs 433 668 [53.9%]), insurance type (Medicaid: 366 233 [43.1%] vs 346 331 [43.0%]), and comorbidities (all standardized mean differences < 0.10). There was a 5.2% decrease in live births during the pandemic. Maternal death during delivery hospitalization increased from 5.17 to 8.69 deaths per 100 000 pregnant patients (odds ratio [OR], 1.75; 95% CI, 1.19-2.58). There were minimal changes in mode of delivery (vaginal: OR, 1.01; 95% CI, 0.996-1.02; primary cesarean: OR, 1.02; 95% CI, 1.01-1.04; vaginal birth after cesarean: OR, 0.98; 95% CI, 0.95-1.00; repeated cesarean: OR, 0.96; 95% CI, 0.95-0.97). LOS during delivery hospitalization decreased by 7% (rate ratio, 0.931; 95% CI, 0.928-0.933). Lastly, the adjusted odds of gestational hypertension (OR, 1.08; 95% CI, 1.06-1.11), obstetric hemorrhage (OR, 1.07; 95% CI, 1.04-1.10), preeclampsia (OR, 1.04; 95% CI, 1.02-1.06), and preexisting chronic hypertension (OR, 1.06; 95% CI, 1.03-1.09) increased. No significant changes in preexisting racial and ethnic disparities were observed.

Conclusions and Relevance During the COVID-19 pandemic, there were increased odds of maternal death during delivery hospitalization, cardiovascular disorders, and obstetric hemorrhage. Further efforts are needed to ensure risks potentially associated with the COVID-19 pandemic do not persist beyond the current state of the pandemic.

(Author)

Full URL: <https://doi.org/10.1001/jamanetworkopen.2022.26531>

2022-08223

Comparison of Severe Maternal Morbidities Associated With Delivery During Periods of Circulation of Specific SARS-CoV-2 Variants. Mupanomunda M, Fakhri MG, Miller C, et al (2022), JAMA Network Open vol 5, no 8, August 2022, e2226436

Importance Infection with SARS-CoV-2, which causes COVID-19, is associated with adverse maternal outcomes. While it is known that severity of COVID-19 varies by viral strain, the extent to which this variation is reflected in adverse maternal outcomes, including nonpulmonary maternal outcomes, is not well characterized.

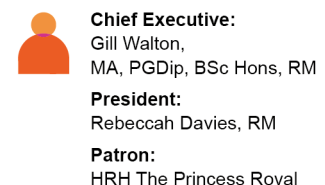
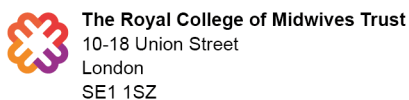
Objective To evaluate the associations of SARS-CoV-2 infection with severe maternal morbidities (SMM) in pregnant patients delivering during 4 pandemic periods characterized by predominant viral strains.

Design, Setting, and Participants This retrospective cohort study included patients delivering in a multicenter, geographically diverse US health system between March 2020 and January 2022. Individuals with SARS-CoV-2 infection were propensity-matched with as many as 4 individuals without evidence of infection based on demographic and clinical variables during 4 time periods based on the dominant strain of SARS-CoV-2: March to December 2020 (wild type); January to June 2021 (Alpha [B.1.1.7]); July to November 2021 (Delta [B.1.617.2]); and December 2021 to January 2022 (Omicron [B.1.1.529]). Data were analyzed from October 2021 to June 2022.

Exposures Positive SARS-CoV-2 nucleic acid amplification test result during the delivery encounter.

Main Outcomes and Measures The primary outcome was any SMM event, as defined by the US Centers for Disease Control and Prevention, during hospitalization for delivery. Secondary outcomes were number of SMM, respiratory

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SMM, nonrespiratory SMM, and nontransfusion SMM events.

Results Over all time periods, there were 3129 patients with SARS-CoV-2, with a median (IQR) age of 29.1 (24.6-33.2) years. They were propensity matched with a total of 12 504 patients without SARS-CoV-2, with a median (IQR) age of 29.2 (24.7-33.2) years. Patients with SARS-CoV-2 infection had significantly higher rates of SMM events than those without in all time periods, except during Omicron. While the risk of any SMM associated with SARS-CoV-2 infection was increased for the wild-type strain (odds ratio [OR], 2.74 [95% CI, 1.85-4.03]) and Alpha variant (OR, 2.57 [95% CI, 1.69-4.01]), the risk during the Delta period was higher (OR, 7.69 [95% CI, 5.19-11.54]; P for trend < .001). The findings were similar for respiratory complications, nonrespiratory complications, and nontransfusion outcomes. For example, the risk of nonrespiratory SMM events for patients with vs without SARS-CoV-2 infection were similar for the wild-type strain (OR, 2.16 [95% CI, 1.40-3.27]) and Alpha variant (OR, 1.96 [95% CI, 1.20-3.12]), highest for the Delta variant (OR, 4.65 [95% CI, 2.97-7.29]), and not significantly higher in the Omicron period (OR, 1.21 [95% CI, 0.67-2.08]; P for trend < .001).

Conclusions and Relevance This cohort study found that the SARS-CoV-2 Delta variant was associated with higher rates of SMM events compared with other strains. Given the potential of new strains, these findings underscore the importance of preventive measures. (Author)

Full URL: <https://doi.org/10.1001/jamanetworkopen.2022.26436>

2022-08216

Pregnancy during a Pandemic: A Cohort Study Comparing Adverse Outcomes during and before the COVID-19

Pandemic. Rao MG, Toner LE, Stone J, et al (2023), American Journal of Perinatology vol 40, no 4, March 2023, pp 445-452

Objective This study was aimed to evaluate how the novel coronavirus disease 2019 (COVID-19) pandemic may have negatively impacted birth outcomes in patients who tested negative for the severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2) virus.

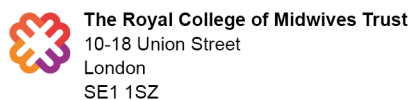
Study Design We conducted a retrospective cohort study using electronic health records of pregnant women admitted to a tertiary medical center in New York City, an epicenter of the pandemic. Women with a singleton gestation admitted for delivery from March 27 to May 31, 2019, and March 27 to May 31, 2020, were included. Women less than 18 years of age, those with a positive SARS-CoV-2 polymerase chain reaction (PCR) test on admission, fetal anomaly, or multiple gestation were excluded. Adverse pregnancy outcomes were compared between groups. Univariable and multivariable logistic regression analyses were used to assess outcomes. The primary outcome was preterm birth.

Results Women who delivered during the 2020 study interval had a significantly higher rate of hypertensive disorders of pregnancy (gestational hypertension [GHTN] or preeclampsia; odds ratio [OR] = 1.40, 95% confidence interval [CI]: 1.05–1.85; p = 0.02), postpartum hemorrhage (PPH; OR = 1.77, 95% CI: 1.14–2.73; p = 0.01), and preterm birth (OR = 1.49, 95% CI: 1.10–2.02; p = 0.01). Gestational age at delivery was significantly lower in the 2020 cohort compared with the 2019 cohort (39.3 versus 39.4 weeks, p = 0.03). After adjusting for confounding variables, multivariate analysis confirmed a persistent increase in hypertensive disorders of pregnancy (OR = 1.56, 95% CI: 1.10–2.20, p = 0.01), PPH (OR = 1.74, 95% CI: 1.06–2.86, p = 0.03), and preterm birth (OR = 1.72, 95% CI: 1.20–2.47, p = 0.003) in patients who delivered in 2020 compared with the same period in 2019. Specifically, medically indicated preterm births increased during the pandemic (OR = 3.17, 95% CI: 1.77–5.67, p < 0.0001).

Conclusion Those who delivered during the COVID-19 pandemic study interval were more likely to experience hypertensive disorders of pregnancy, medically indicated preterm birth, and PPH even in the absence of SARS-CoV2 infection.

Key Points

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Stressful life events can lead to adverse pregnancy outcomes.

Even patients negative for COVID-19 experienced GHTN, preeclampsia, PPH and preterm birth during the pandemic.

Pandemic-related stress may adversely affect perinatal outcomes. (Author)

2022-08206

Action is needed to tackle the clinical, psychological and socioeconomic impact of perinatal COVID-19. Briana DD, Papaevangelou V, Malamitsi-Puchner A (2022), Acta Paediatrica vol 111, no 12, December 2022, pp 2278-2283

The COVID-19 pandemic has turned perinatal healthcare into a worldwide public health challenge. Although initial data did not demonstrate pregnancy as a more susceptible period to adverse outcomes of severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) infection, an increasing number of reports now certify maternal illness as a high-risk condition for the development of maternal–fetal complications. Despite the rarity of SARS-CoV-2 vertical transmission, severe maternal illness might induce adverse perinatal and neonatal outcomes. Additionally, perinatal COVID-19 data may raise concerns about long-term harmful consequences to the offspring in the framework of non-communicable diseases. The World Health Organisation, as well as scientific literature, consider the protection of the maternal–fetal dyad against COVID-19 as a critical issue and, therefore, strongly promote and encourage the vaccination of pregnant and lactating women. Furthermore, the pandemic has triggered an unprecedented recession, leading to historic levels of unemployment and deprivation, while health, societal, economic and gender inequities particularly affecting low-income and middle-income countries, have increased. This mini-review provides an updated brief report on historical, clinical, psychological and socioeconomic aspects of the COVID-19 pandemic based on 10 lectures presented at the 9th Maria-Delivoria-Papadopoulos Perinatal Symposium, held virtually on 19 March 2022.

(Author)

Full URL: <https://doi.org/10.1111/apa.16513>

2022-08157

Maternal and Neonatal Outcomes During the First Year of the Covid-19 Pandemic. McDonnell S, Lindow SW, Sloan J, et al (2022), Irish Medical Journal vol 115, no 7, July/August 2022, p 639

Letter to the editor on the effects of the first year of the Covid-19 pandemic on maternal, fetal and neonatal outcomes. (AS)

Full URL: <https://imj.ie/maternal-and-neonatal-outcomes-during-the-first-year-of-the-covid-19-pandemic/>

2022-08030

Gestational diabetes screening from the perspective of consumers: Insights from early in the COVID-19 pandemic and opportunities to optimise experiences. Shipton E, Meloncelli N, D'Emden M, et al (2023), Australian and New Zealand Journal of Obstetrics and Gynaecology (ANZJOG) vol 63, no 2, April 2023, pp 154-162

Background

Consumer perspectives are a cornerstone of value-based healthcare. Screening and diagnosis of gestational diabetes mellitus (GDM) were among many of the rapid changes to health care recommended during the COVID-19 pandemic. The changes provided a unique opportunity to add information about women's perspectives on the debate on GDM screening.

Aims

The aim of this qualitative study was to explore women's perspectives and understanding of GDM screening and diagnosis comparing the modified COVID-19 recommendations to standard GDM screening and diagnostic practices.

Methods

Women who had experienced both the standard and modified GDM screening and diagnostic processes were recruited for telephone interviews. Data analysis used inductive reflexive thematic analysis. Online surveys were

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disseminated to any registrant not included in interviews to provide an opportunity for all interested participants to provide their perspective.

Results

Twenty-nine telephone interviews were conducted and 19 survey responses were received. Seven themes were determined: (1) information provision from clinicians; (2) acceptability of GDM screening; (3) individualisation of GDM screening methods; (4) safety nets to avoid a missed diagnosis; (5) informed decision making; (6) women want information and evidence; and (7) preferred GDM screening methods for the future.

Conclusions

Overall, women preferred the modified GDM screening recommendations put in place due to the COVID-19 pandemic. However, their preference was influenced by their prior screening experience and perception of personal risk profile. Women expressed a strong need for clear communication from health professionals and the opportunity to be active participants in decision making. (Author)

Full URL: <https://doi.org/10.1111/ajo.13600>

2022-08029

Clinicians' perspectives on gestational diabetes screening during the global COVID-19 pandemic in Australia.

Meloncelli N, Shipton E, Doust J, et al (2023), Australian and New Zealand Journal of Obstetrics and Gynaecology (ANZJOG) vol 63, no 2, April 2023, pp 163-170

Aim

There is no international consensus for the screening and diagnosis of gestational diabetes mellitus (GDM). In March 2020, modified screening and diagnostic recommendations were rapidly implemented in Queensland, Australia, in response to the COVID-19 pandemic. How clinicians perceived and used these changes can provide insights to support high-quality clinical practice and provide lessons for future policy changes. The aim of this study was to understand clinicians' perceptions and use of COVID-19 changes to GDM screening and diagnostic recommendations.

Methods

Queensland healthcare professionals responsible for diagnosing or caring for women with GDM were recruited for semi-structured telephone interviews. Data analysis of transcribed interviews used inductive reflexive thematic analysis.

Results

Seventeen interviews were conducted with the following participants: six midwives/nurses, three endocrinologists, two general practitioners, two general practitioners/obstetricians, two diabetes educators, one dietitian and one obstetrician. Three themes emerged: communication and implementation, perceptions and value of evidence and diversity in perceptions of GDM screening. Overall, clinicians welcomed the rapid changes during the initial uncertainty of the pandemic, but as COVID-19 became less of a threat to the Queensland healthcare system, some questioned the underlying evidence base. In areas where GDM was more prevalent, clinicians more frequently worried about missed diagnoses, whereas others who felt that overdiagnosis had occurred in the past continued to support the changes.

Conclusions

These findings highlight the challenges to changing policy when clinicians have diverse (and often strongly held) views. (Author)

Full URL: <https://doi.org/10.1111/ajo.13601>

2022-07908

Preterm birth and severe maternal morbidity associated with SARS-CoV-2 infection during the Omicron wave.

Gulersen M, Alvarez A, Rochelson B, et al (2022), American Journal of Obstetrics & Gynecology MFM vol 4, no 6, November 2022,

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Research letter aiming to evaluate the risk of preterm birth and severe maternal morbidity in pregnant patients with SARS-CoV-2 during the Omicron wave of the COVID-19 pandemic. Results suggest that SARS-CoV-2 infection was associated with an increased risk of preterm birth. (LDO)

Full URL: <https://doi.org/10.1016/j.ajogmf.2022.100712>

2022-07859

Parental experiences with changes in maternity care during the Covid-19 pandemic: A mixed-studies systematic

review. Lalor JG, Sheaf G, Mulligan A, et al (2023), *Women and Birth: Journal of the Australian College of Midwives* vol 36, no 2, March 2023, pp e203-e212

Background

During the COVID-19 pandemic, pregnant women were identified as a high-risk and vulnerable group. To reduce risk of transmission, maternity healthcare services were modified to limit exposure but maintain services for pregnant women. However, the change in hospital practice may have compromised quality maternal care standards. Therefore, this review aims to explore parental experiences and views with maternity care received from healthcare institutions during the COVID-19 pandemic.

Methods

A mixed studies systematic review was conducted. Six electronic databases (Medline, CINAHL, Embase, PsycInfo, Web of Science, and Maternity and Infant Care) were searched for qualitative, observational, and mixed method studies from the year 2019 to February 2022. Study quality was appraised using the Mixed Methods Appraisal Tool.

Quantitative findings were converted to narrative findings. Data was synthesised thematically using a convergent synthesis design.

Results

Fifty-eight articles were included. Four themes were generated: (1) Distress associated with COVID-19 regulations (perception of hospital restrictions, confusion with ever changing policies), (2) adaptability with maternity services (prenatal: changes in birth plans, prenatal: altered antenatal appointments, education, and care, intrapartum: medicalization of birth, postpartum: varied views on care received and Breastfeeding woes, postpartum: skin-to-skin contact and mother infant bonding) (3) importance of support persons, and (4) future direction for maternity services.

Conclusions

Parental experiences highlighted how maternity care during the COVID-19 pandemic did not adhere to WHO standards of quality maternity care. This calls for healthcare institutions to continuously appraise the implementation of restrictive practices that deviate from evidence-based frameworks underpinning quality care. (Author)

Full URL: <https://doi.org/10.1016/j.wombi.2022.08.004>

2022-07728

Coronavirus Infection during Pregnancy: A 1-Year Experience among Pregnant Egyptian Women.

Aly Abd El Fattah E (2022), *Open Journal of Obstetrics and Gynecology* vol 12, no 5, May 2022, pp 361-374

Objectives: This study aimed to investigate the effect of COVID-19 on fetal well-being and perinatal outcomes.

Methods: Pregnant women with documented COVID-19 infection who visited the antenatal care clinic of El Shatby Maternity Hospital, Alexandria, Egypt, from May 2020 to May 2021 were selected and classified into three groups according to the illness severity: mild, moderate, and severe. Fetal well-being was examined using the umbilical and cerebral Doppler and nonstress test (NST). The estimated fetal weight and amniotic fluid volume were also evaluated. After delivery, the neonates were evaluated through Apgar scoring at 1 and 5 min, cord blood samples, and neonatal nasopharyngeal swabs. Results: Abnormal umbilical and cerebral Doppler findings, abnormal NST results, higher incidence of cesarean section (CS) and emergency CS, and poor perinatal outcomes were observed in severe cases.

Moderate and mild maternal infections had neither an adverse perinatal outcome nor an effect on the mode of delivery. Conclusion: Severe COVID-19 infection can affect the perinatal outcome. (Author)

Full URL: <https://doi.org/10.4236/ojog.2022.125033>

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2022-07711

Increased maternal mortality in unvaccinated SARS-CoV-2 infected pregnant patients. Atak Z, Ocakoglu SR, Topal S, et al (2022), Journal of Obstetrics and Gynaecology 19 July 2022, online

The aim of this study was to demonstrate the poor prognosis of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection in unvaccinated pregnant women. In this retrospective study, the clinical and laboratory parameters of 26 pregnant or immediately postpartum patients, who were hospitalised and needed intensive care unit (ICU) follow-up due to coronavirus disease 2019 (COVID-19) infection were reported. All pregnant patients who followed up in the ICU were unvaccinated. The mortality rate was calculated as 34.62% in the patients included in the study who were admitted to the ICU. Among patients hospitalised in the ICU, the maternal mortality and stillbirth rates associated with COVID-19 infection were found to be 156.28/100,000 and 11.54%, respectively. Preterm birth occurred in 58.33% of the patients who delivered. 79.17% of the patients were delivered by caesarean section. Lymphopenia, high ferritin, interleukin-6, lactate dehydrogenase, D-dimer and C-reactive protein values were found to be associated with mortality. The course of pregnant patients with COVID-19 infection is not always predictable. Clinical and laboratory data should be evaluated in combination for disease prognosis. Adequate information should be given about the importance of vaccination.

Impact Statement

What is already known on this subject? The SARS-CoV-2 infection has caused a public health crisis worldwide. As a result of studies on coronavirus disease 2019 (COVID-19) infected pregnant women, it was observed that there was an increase in maternal and perinatal mortality. There has been an increase in intensive care unit (ICU) admissions, especially after patients infected with the Delta variant. The pandemic continues with an unpredictable course of the new variants.

What do the results of this study add? Compared to the pre-pandemic period, COVID-19 infection caused a more than 10-fold increase in maternal mortality, particularly after the Delta variant. In intensive care follow-up, low lymphocyte count, high lactate dehydrogenase, D-dimer, C-reactive protein, ferritin and interleukin-6 values are indicators of poor prognosis.

What are the implications of these findings for clinical practice and/or further research? COVID-19 infection causes increased maternal mortality. Considering that all of the patients admitted to the ICU in our study were unvaccinated, pregnant women should be encouraged to get vaccinated. (Author)

2022-07577

The experience of fathers during the covid-19 UK maternity care restrictions. Andrews K, Ayers S, Williams LR (2022), Midwifery vol 113, October 2022, 103434

Objective

During the COVID-19 pandemic fathers in the UK were excluded from many aspects of maternity care to reduce escalating transmission rates. This study explores the experiences of fathers who had a baby during the pandemic to understand what effect these maternity restrictions had on them and their relationship to the baby.

Design

A qualitative interview study of the experiences of fathers whose baby was born during the pandemic-related UK maternity restrictions.

Participants and setting

Non-probability voluntary response sampling of 20 fathers: including 13 primiparous fathers and 7 multiparous fathers. Eligibility criteria were that fathers lived in the UK and had a baby born on or after the 23rd March 2020; the start of the most severe COVID-19 maternity restrictions. Participants were interviewed remotely via telephone using semi-structured interviews which were transcribed and analysed using thematic analysis.

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Findings

Four themes, including ten sub-themes, were identified that described fathers' experiences of the maternity restrictions and the father-baby relationship. The themes were: (1) The impact on paternal experience: this theme describes a collective negative paternal maternity experience as a result of the restrictions. Notably, father exclusion produced feelings of isolation and a sense of loss, along with a disconnection from the pregnancy. (2) The impact on the father-baby relationship: this theme discusses the adverse consequence of the restrictions on initial father-baby bonding. (3) Observed impact on mothers: the observed detrimental impact that excluding fathers had on maternal mental health and well-being. Finally, (4) Fatherhood in the 'new normal': the change of daily living during the pandemic aided profound family relationship building, improving long-term father-baby bonding, compared to pre-pandemic conditions.

Key Conclusions

The findings provide evidence of undesirable consequences the pandemic-related UK maternity restrictions had on birth partners. With restrictions to maternity care implemented across the globe, these concerns may be applicable at an international scale.

Implications for practice

This study adds to other contemporary literature on this subject and can inform discussion among maternity services of the importance of including fathers for improved parental well-being and initial infant bonding. (Author)

Full URL: <https://doi.org/10.1016/j.midw.2022.103434>

2022-07505

Clinical decision analysis of elective delivery versus expectant management for pregnant individuals with COVID-19-related acute respiratory distress syndrome. Resende MF, Yarnell Jr C, D'Souza R, et al (2022), American Journal of Obstetrics & Gynecology MFM vol 4, no 6, November 2022, 100697

Background

Pregnant individuals are vulnerable to COVID-related acute respiratory distress syndrome (ARDS). There is a lack of high-quality evidence on whether elective delivery or expectant management leads to better maternal and neonatal outcomes.

Objective

To determine whether elective delivery or expectant management is associated with higher quality-adjusted life expectancy for a pregnant individual with COVID-19-related ARDS and their neonate.

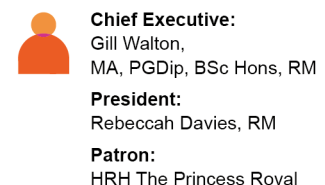
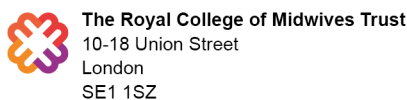
Study design

We performed a clinical decision analysis using a patient level model in which we simulated pregnant individuals and their unborn children. We used a patient-level model with parallel open-cohort structure, daily cycle length, continuous discounting, lifetime horizon, sensitivity analyses for key parameter values, and 1,000 iterations for quantification of uncertainty. We simulated pregnant individuals at 32 weeks gestational age, invasively ventilated due to COVID-19-related ARDS. In the elective delivery strategy, pregnant individuals received immediate cesarean delivery. In the expectant management strategy, pregnancies continued until spontaneous labor or obstetrical decision to deliver. For both pregnant individuals and neonates, model outputs were hospital or perinatal survival, life expectancy, and quality-adjusted life expectancy denominated in years (QALYs), summarized by the mean and 95% credible interval (CI). Maternal utilities incorporated neonatal outcomes in accordance with best practices in perinatal decision analysis.

Results

Model outputs for pregnant individuals were similar comparing elective delivery at 32 weeks' gestation to expectant management, including hospital survival (87.1% vs 87.4%), life-years (difference -0.1, 95%CI -1.4 to 1.1), and QALYs (difference -0.1, 95%CI -1.3 to 1.1). For neonates, elective delivery at 32 weeks' gestation was estimated to lead to a

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higher perinatal survival (98.4% vs 93.2%, difference 5.2%, 95%CI 3.5% to 7%), similar life-years (difference 0.9, 95%CI -0.9 to 2.8), and more QALYs (difference 1.3, 95%CI 0.4 to 2.2). For pregnant individuals, elective delivery was not superior to expectant management across a range of scenarios, between 28 and 34 weeks of gestation. Elective delivery at 30 weeks' gestation resulted in higher neonatal QALYs (1.1, 95% CI 0.1 to 2.1) despite higher long-term complications (4.3% vs. 0.5%, difference 3.7%, 95%CI 2.4 – 5.1%), or if intrauterine death or maternal ARDS mortality were more likely.

Conclusion

The decision to pursue elective delivery versus expectant management in a pregnant individual with COVID-19-related ARDS should be guided by gestational age, risk of intrauterine death, and maternal ARDS severity. For the pregnant individual, elective delivery is comparable but not superior to expectant management for gestational ages from 28 to 34 weeks. For neonates, elective delivery was superior if gestational age was 30 weeks or higher, and if the rate of intrauterine death or maternal mortality risk was high. We recommend basing the decision for elective delivery versus expectant management in a pregnant individual with COVID-19-related ARDS on gestational age and likelihood of intrauterine or maternal death.

Keywords

Decision analysisPregnancyAcute respiratory distress syndromeCOVID-19Premature birthCesarean sectionCritical illnessObstetricsNeonatologyComputer simulation (Author)

Full URL: <https://doi.org/10.1016/j.ajogmf.2022.100697>

2022-07216

Adherence to face mask use during the COVID-19 pandemic among women seeking antenatal care in Kinshasa, Democratic Republic of Congo: a facility-based cross-sectional study. Nkamba DM, Arena PJ, Gadoth A, et al (2022), *BMJ Open* vol 12, no 7, July 2022, e060929

Objectives To describe face mask use among pregnant women seeking antenatal care (ANC) in Kinshasa, Democratic Republic of Congo and to identify factors associated with masking adherence in this population.

Design Facility-based cross-sectional study nested within a prospective cohort study.

Setting Random sample of 10 health facilities, including 5 primary health centers and 5 secondary facilities or hospitals.

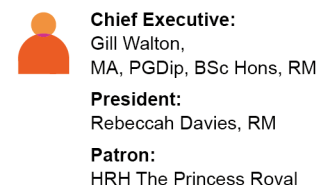
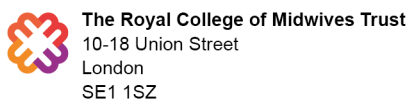
Participants A total of 934 pregnant women aged 18 years or above with a gestational age of at least 32 weeks were consecutively surveyed from 17 August 2020 to 31 January 2021.

Primary and secondary outcome measures We estimated the proportions of pregnant women wearing a face mask and masking correctly (ie, over the mouth and nose), and assessed their knowledge regarding the COVID-19 pandemic. Multivariable logistic regression was employed to identify factors associated with overall and correct face mask use.

Results Overall, 309 (33.1%) women wore a mask during the interview after their antenatal appointments, but only 33 (10.7%) wore a mask correctly. The odds of masking and correct mask use were significantly higher among women who had their ANC visit in a facility that provided COVID-19 care. Additionally, women who experienced COVID-19-like symptoms in the past 6 months had higher odds of wearing a mask correctly compared with those reporting no recent symptoms. Although 908 (97.2%) women were aware of the COVID-19 pandemic, only 611 (67.3%) thought that COVID-19 was circulating locally in Kinshasa.

Conclusion Overall and correct face mask adherence levels were low among pregnant women attending ANC in Kinshasa. Our study highlights the need for improving adherence to correct face mask use in order to help control the spread of COVID-19 within Kinshasa alongside other control measures, like vaccination. (Author)

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2022-07211

Investigating service delivery and perinatal outcomes during the low prevalence first year of COVID-19 in a multiethnic Australian population: a cohort study. Melov SJ, Elhindi J, McGee TM, et al (2022), *BMJ Open* vol 12, no 7, July 2022, e062409

Objective Investigate the impact of the COVID-19 pandemic on perinatal outcomes in an Australian high migrant and low COVID-19 prevalent population to identify if COVID-19 driven health service changes and societal influences impact obstetric and perinatal outcomes.

Design Retrospective cohort study with pre COVID-19 period 1 January 2018–31 January 2020, and first year of global COVID-19 period 1 February 2020–31 January 2021. Multivariate logistic regression analysis was conducted adjusting for confounders including age, area-level socioeconomic status, gestation, parity, ethnicity and body mass index.

Setting Obstetric population attending three public hospitals including a major tertiary referral centre in Western Sydney, Australia.

Participants Women who delivered with singleton pregnancies over 20 weeks gestation. Ethnically diverse women, 66% overseas born. There were 34 103 births in the district that met inclusion criteria: before COVID-19 n=23 722, during COVID-19 n=10 381.

Main outcome measures Induction of labour, caesarean section delivery, iatrogenic and spontaneous preterm birth, small for gestational age (SGA), composite neonatal adverse outcome and full breastfeeding at hospital discharge.

Results During the first year of COVID-19, there was no change for induction of labour (adjusted OR, aOR 0.97; 95% CI 0.92 to 1.02, p=0.26) and a 25% increase in caesarean section births (aOR 1.25; 95% CI 1.19 to 1.32, p<0.001). During the COVID-19 period, we found no change in iatrogenic preterm births (aOR 0.94; 95% CI 0.80 to 1.09) but a 15% reduction in spontaneous preterm birth (aOR 0.85; 95% CI 0.75 to 0.97, p=0.02) and a 10% reduction in SGA infants at birth (aOR 0.90; 95% CI 0.82 to 0.99, p=0.02). Composite adverse neonatal outcomes were marginally higher (aOR 1.08; 95% CI 1.00 to 1.15, p=0.04) and full breastfeeding rates at hospital discharge reduced by 15% (aOR 0.85; 95% CI 0.80 to 0.90, p<0.001).

Conclusion Despite a low prevalence of COVID-19, both positive and adverse obstetric outcomes were observed that may be related to changes in service delivery and interaction with healthcare providers. Further research is suggested to understand the drivers for these changes. (Author)

Full URL: <http://dx.doi.org/10.1136/bmjopen-2022-062409>

2022-07208

Maternal and perinatal outcomes of pregnancy associated with COVID-19: Systematic review and meta-analysis.

Karaçam Z, Kizilca-Çakaloz D, Güneş-Öztürk G, et al (2022), *European Journal of Midwifery* vol 6, July 2022, p 42

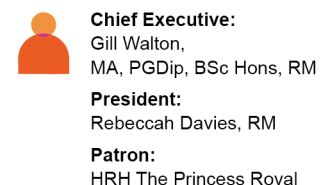
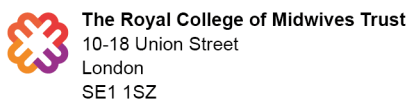
Introduction:

This study explored maternal and infant outcomes in the periods of pregnancy, birth and the postpartum, in women with COVID-19.

Methods:

After PROSPERO registration (CRD42020191106), scanning for the studies was carried out over the period 5–15 May 2020 in the PubMed, Science Direct, EBSCO and Web of Science databases with the search string: ['COVID-19' AND ('pregnancy' OR 'pregnant' OR 'maternal outcomes' OR 'infant outcomes' OR 'fetal outcomes' OR 'birth')]. Studies reporting maternal and perinatal outcomes of pregnant women with COVID-19 were included. Data were extracted

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independently by two researchers and combined with meta-analysis and pooled analysis.

Results:

The 54 studies included in this analysis contained data on 517 pregnant women diagnosed with COVID-19 and 385 infants. Of the pregnant women, 18% had gone into preterm labor and 77% had given birth by caesarean. Of the newborns, 19% had low birth weight, 14% had fetal distress, and 24% were admitted into the neonatal intensive care unit. Nine maternal and eight baby mortalities were reported in the studies.

Conclusions:

The study revealed that COVID-19 in pregnant women appeared to be negative maternal and infant outcomes, with mortalities as well. (Author)

Full URL: <https://doi.org/10.18332/ejm/149485>

2022-07180

Viral pulmonary infection in pregnancy – including COVID-19, SARS, influenza A, varicella. Maudhoo A, Khalil A (2022), Best Practice & Research: Clinical Obstetrics and Gynaecology vol 85, December 2022, pp 17-25

The COVID-19 pandemic has been at the forefront of medicine over the last few years. Pregnant women are often exposed to infectious agents that can be harmful not only to the mother but also to the foetus. Moreover, changes during pregnancy means that pregnant women have increased vulnerability to viral infections, especially pulmonary infections. Epidemiological studies have shown a link between maternal viral infections and miscarriage, preterm birth as well as congenital defects. With potential poor outcomes for both women and their newborns, having a good understanding of the presentation and management of these viral pulmonary infections is essential. The increased risk of adverse outcomes has been highlighted during the COVID-19, SARS and H1N1 influenza pandemics. (Author)

Full URL: <https://doi.org/10.1016/j.bpobgyn.2022.06.006>

2022-07144

Telemonitoring for COVID-19 positive pregnant women; feasibility and user experience of SAFE@home Corona: prospective pilot study. Moes SL, Depmann M, Lely TA, et al (2022), BMC Pregnancy and Childbirth vol 22, no 556, 11 July 2022

Background

COVID-19 has catalysed digital innovations enabling remote healthcare. Pregnant women are at increased risk for severe course of COVID-19 infection. Also, the pandemic has a negative emotional impact on pregnant women as they worry about their own health and the health of their unborn child. We developed a telemonitoring platform called SAFE@home-corona consisting of a pulse oximeter and an app with symptom checklist. The aim of this study was to examine the feasibility, defined by compliance to the platform and by monitoring the course of COVID-19, patient satisfaction and user experience of a telemonitoring platform in COVID-19 positive pregnant women in the Netherlands.

Methods

We conducted a prospective pilot study among Dutch-speaking COVID-19 symptomatic pregnant women. Women were asked to monitor their oxygen-saturation with a pulse oximeter and COVID-related complaints with an in-app questionnaire daily. Oxygen-saturation and complaints were monitored by the Medical Management Centre with triage protocol. COVID-19, pregnancy, and user experience data were collected. To assess feasibility, compliance of daily self-monitoring and compliance of all intended measurements were calculated. Severity of COVID-19 was assessed via the platform and medical record. Patient satisfaction and user experience were measured through a self-developed questionnaire.

Results

Twenty-eight women were eligible of which 27 (93.1%) completed the study. Compliance of daily measurement and all intended measurements was high with 98.9 and 93.9%, respectively. Six women were hospitalized, of whom one to

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the intensive care unit. Overall, women indicated high satisfaction scores, varying from 8 to 10/10. Women were more concerned for the health of their unborn child or family than for themselves (66.7%). They stated that the platform offered reassurance. Patients would highly recommend the platform to pregnant peers during COVID infection.

Conclusions

This pilot study demonstrated feasibility of the SAFE@home-corona platform for self-monitoring COVID-19 course in pregnant women. Patients were satisfied, it offered reassurance, women would recommend use to peers. Upscaling the platform is needed to draw conclusions from the early signalling abilities and to keep evaluating patient satisfaction. The platform has great potential for self-monitoring of COVID-19 and possibly other pulmonary infections in pregnant women. (Author)

Full URL: <https://doi.org/10.1186/s12884-022-04878-7>

2022-07126

Changes in prenatal care and vaccine willingness among pregnant women during the COVID-19 pandemic. Erchick DJ, Agarwal S, Kaysin A, et al (2022), BMC Pregnancy and Childbirth vol 22, no 558, 13 July 2022

Introduction

Concerns about SARS-CoV-2 infection risk in health care settings have resulted in changes in prenatal care and birth plans, such as shifts to in-person visits and increased Cesarean delivery. These changes may affect quality of care and limit opportunities for clinicians to counsel pregnant individuals, who are at higher risk of severe COVID-19 disease and adverse pregnancy outcomes, about prevention and vaccination.

Methods

We conducted a cross-sectional online survey of United States adults on changes in prenatal care, COVID-19 vaccine willingness, and reasons for unwillingness to receive a vaccine. We summarized changes in access to care and examined differences in vaccine willingness between pregnant and propensity-score matched non-pregnant controls using chi-squared tests and multivariable conditional logistic regression.

Results

Between December 15–23, 2020, 8481 participants completed the survey, of which 233 were pregnant. Three-quarters of pregnant women (n = 186) experienced a change in prenatal care, including format of care (n = 84, 35%) and reduced visits (n = 69, 24%). Two-thirds experienced a change in birth plans, from a hospital birth to home birth (n = 45, 18%) or vaginal birth to a Cesarean delivery (n = 42, 17%). Although 40% of pregnant women (n = 78) were unwilling to receive COVID-19 vaccination, they had higher, though non-significant, odds of reporting willingness to receive vaccination compared to similar non-pregnant women (aOR 1.38, 95% CI: 0.95, 2.00).

Conclusion

To support pregnant women through the perinatal care continuum, maternity care teams should develop protocols to foster social support, patient-centered education around infection prevention that focuses on improved risk perception, expected changes in care due to COVID-19, and vaccine effectiveness and safety. (Author)


Full URL: <https://doi.org/10.1186/s12884-022-04882-x>

2022-07098


A curious case of 'COVID toes' in pregnancy. Wilson-Morkeh H, Thorne I (2023), Obstetric Medicine vol 16, no 4, December 2023, pp 256–259

The novel coronavirus of 2019 (COVID-19) can affect multiple organ systems with a wide spectrum of illness severity. Its effect on the respiratory tract is well-documented and has resulted in considerable excess mortality worldwide. However, observed cutaneous manifestations of COVID-19 are rising, ranging from short-lived viral exanthems to vesicular eruptions and urticaria. An unusual subgroup of these manifestations – pseudo-chilblains, also referred to as pernio-like lesions or 'COVID toes' – describes the acral areas of erythema and oedema that can affect young

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individuals following COVID-19. We present a case associated with pustule and vesicle formation occurring in the context of pregnancy. (Author)

2022-07083

Short-term Pregnancy Outcomes After Nirmatrelvir–Ritonavir Treatment for Mild-to-Moderate Coronavirus Disease 2019 (COVID-19). Loza A, Farias R, Gavin N, et al (2022), *Obstetrics & Gynecology* 28 June 2022, online

This is a descriptive study of pregnant patients who received nirmatrelvir–ritonavir therapy from April 16, 2022, through May 18, 2022. Patients were eligible to receive nirmatrelvir–ritonavir if they were diagnosed with mild-to-moderate coronavirus disease 2019 (COVID-19) with symptom onset within 5 days, did not require oxygen therapy or hospital admission, and had no contraindications to nirmatrelvir–ritonavir. During the study time frame, 11 patients were identified as candidates for nirmatrelvir–ritonavir treatment. All patients agreed to nirmatrelvir–ritonavir treatment after a telehealth consultation; seven patients completed the treatment. All patients who received nirmatrelvir–ritonavir experienced symptom resolution without the need for additional care. All but one patient tolerated nirmatrelvir–ritonavir without immediate adverse effects, and no adverse fetal or neonatal effects were observed. (Author)

Full URL: <https://doi.org/10.1097/AOG.0000000000004900>

2022-07076

High-Dose Inhaled Nitric Oxide for the Treatment of Spontaneously Breathing Pregnant Patients With Severe Coronavirus Disease 2019 (COVID-19) Pneumonia. Valsecchi C, Winterton D, Safaee BF, et al (2022), *Obstetrics & Gynecology* vol 140, no 2, August 2022, pp 195-203

OBJECTIVE:

To evaluate whether the use of inhaled nitric oxide (iNO)200 improves respiratory function.

METHODS:

This retrospective cohort study used data from pregnant patients hospitalized with severe bilateral coronavirus disease 2019 (COVID-19) pneumonia at four teaching hospitals between March 2020 and December 2021. Two cohorts were identified: 1) those receiving standard of care alone (SoC cohort) and 2) those receiving iNO200 for 30 minutes twice daily in addition to standard of care alone (iNO200 cohort). Inhaled nitric oxide, as a novel therapy, was offered only at one hospital. The prespecified primary outcome was days free from any oxygen supplementation at 28 days postadmission. Secondary outcomes were hospital length of stay, rate of intubation, and intensive care unit (ICU) length of stay. The multivariable-adjusted regression analyses accounted for age, body mass index, gestational age, use of steroids, remdesivir, and the study center.

RESULTS:

Seventy-one pregnant patients were hospitalized for severe bilateral COVID-19 pneumonia: 51 in the SoC cohort and 20 in the iNO200 cohort. Patients receiving iNO200 had more oxygen supplementation–free days (iNO200: median [interquartile range], 24 [23–26] days vs standard of care alone: 22 [14–24] days, $P=.01$) compared with patients in the SoC cohort. In the multivariable-adjusted analyses, iNO200 was associated with 63.2% (95% CI 36.2–95.4%; $P<.001$) more days free from oxygen supplementation, 59.7% (95% CI 56.0–63.2%; $P<.001$) shorter ICU length of stay, and 63.6% (95% CI 55.1–70.8%; $P<.001$) shorter hospital length of stay. No iNO200-related adverse events were reported.

CONCLUSION:

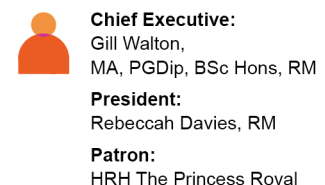
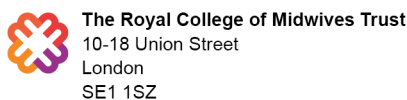
In pregnant patients with severe bilateral COVID-19 pneumonia, iNO200 was associated with a reduced need for oxygen supplementation and shorter hospital stay. (Author)

Full URL: <https://doi.org/10.1097/AOG.0000000000004847>

2022-07030

Coronavirus disease 2019 and the placenta: A literature review. Gesaka SR, Obimbo MM, Wanyoro A (2022), *Placenta* vol

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Coronavirus disease 2019 (COVID-19) caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) virus has been implicated in the clinical pathology of multiple organs and organ systems. Due to the novelty of the disease, there is a need to review emerging literature to understand the profile of SARS-CoV-2 in the placenta. This review sought to evaluate the literature on the mediators, mechanism of entry, pathogenesis, detection, and pathology of SARS-CoV-2 in the placenta. Systematic literature searches found 96 eligible studies.

Our review revealed that SARS-CoV-2 canonical mediators, angiotensin-converting enzyme-2 (ACE2), and transmembrane serine protease-2 (TMPRSS2) are variably expressed in various placenta compartments, including the villous cytotrophoblasts, syncytiotrophoblasts (STBs), and extravillous trophoblasts (EVTs) throughout pregnancy. Placental SARS-CoV-2 and coronavirus-associated receptors and factors (SCARFs), including basigin (BSG/CD147), dipeptidyl peptidase-4 (DPP4/CD26), cathepsin B/L (CTL B/L), furin, interferon-induced transmembrane protein (IFITM1-3), and lymphocyte antigen 6E (LY6E) may increase or reduce the permissiveness of the placenta to SARS-CoV-2. EVTs express genes that code for proteins that may drive viral pathogenesis in the placenta. Viral RNA, proteins, and particles were detected primarily in the STBs by in situ hybridization, immunohistochemistry, electron microscopy, and polymerase chain reaction. Placental pathology in SARS-CoV-2-infected placentas included maternal and fetal vascular malperfusion and a generally nonspecific inflammatory-immune response.

The localization of SARS-CoV-2 receptors, proteases, and genes involved in coding proteins that drive viral pathogenesis in the placenta predisposes the placenta to SARS-CoV-2 infection variably in all pregnancy trimesters, with antecedent placental pathology. There is a need for further studies to explicate the mechanism of entry and pathogenesis of SARS-CoV-2 in the placenta. (Author)

Full URL: <https://doi.org/10.1016/j.placenta.2022.07.007>

2022-07026

The clinical impact of maternal COVID-19 on mothers, their infants, and placentas with an analysis of vertical transfer of maternal SARS-CoV-2-specific IgG antibodies. Ward JD, Cornaby C, Kato T, et al (2022), *Placenta* vol 123, June 2022, pp 12-23

Introduction

The effect of SARS-CoV-2 severity or the trimester of infection in pregnant mothers, placentas, and infants is not fully understood.

Methods

A retrospective, observational cohort study in Chapel Hill, NC of 115 mothers with SARS-CoV-2 and singleton pregnancies from December 1, 2019 to May 31, 2021 via chart review to document the infants' weight, length, head circumference, survival, congenital abnormalities, hearing loss, maternal complications, and placental pathology classified by the Amsterdam criteria.


Results

Of the 115 mothers, 85.2% were asymptomatic (n = 37) or had mild (n = 61) symptoms, 13.0% had moderate (n = 9) or severe (n = 6) COVID-19, and 1.74% (n = 2) did not have symptoms recorded. Moderate and severe maternal infections were associated with increased C-section, premature delivery, infant NICU admission, and were more likely to occur in Type 1 (p = 0.0055) and Type 2 (p = 0.0285) diabetic mothers. Only one infant (0.870%) became infected with SARS-CoV-2, which was not via the placenta. Most placentas (n = 63, 54.8%) did not show specific histologic findings; however, a subset showed mild maternal vascular malperfusion (n = 26, 22.6%) and/or mild microscopic ascending intrauterine infection (n = 28, 24.3%). The infants had no identifiable congenital abnormalities, and all infants and mothers survived.


Discussion

Most mothers and their infants had a routine clinical course; however, moderate and severe COVID-19 maternal

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infections were associated with pregnancy complications and premature delivery. Mothers with pre-existing, non-gestational diabetes were at greatest risk of developing moderate or severe COVID-19. The placental injury patterns of maternal vascular malperfusion and/or microscopic ascending intrauterine infection were not associated with maternal COVID-19 severity. (Author)

Full URL: <https://doi.org/10.1016/j.placenta.2022.04.006>

2022-06968

A retrospective cohort study of pregnancy outcomes during the pandemic period of the SARS-CoV-2 omicron variant:

A single center's experience. Floyd R, Hunter S, Murphy N, et al (2022), International Journal of Gynecology & Obstetrics vol 159, no 2, November 2022, pp 605-606

Our retrospective review revealed that antenatal infection with the Omicron variant is associated with minimal symptoms in vaccinated patients, minimal medical intervention, and good obstetric outcomes. (Author)

Full URL: <https://doi.org/10.1002/ijgo.14312>

2022-06951

Comparison of Pregnancy Preferences Preceding vs Year 1 of the COVID-19 Pandemic. Rocca CH, Parra M, Muñoz L, et al (2022), JAMA Network Open vol 5, no 7, July 2022, e2220093

Importance Understanding how the COVID-19 pandemic affected people's desire to avoid pregnancy is essential for interpreting the pandemic's associations with access to reproductive health care and reproductive autonomy. Early research is largely cross-sectional and relies on people's own evaluations of how their desires changed.

Objective To investigate longitudinal changes in pregnancy desires during the year before and the first year of the COVID-19 pandemic.

Design, Setting, and Participants In this cohort study, participants reported their pregnancy preferences at baseline and quarterly for up to 18 months between March 2019 and March 2021. An interrupted time series analysis with mixed-effects segmented linear regression was used to examine population-averaged time trends. People were recruited from 7 primary and reproductive health care facilities in Arizona, New Mexico, and Texas. Participants were sexually active, pregnancy-capable people aged 15 to 34 years who were not pregnant or sterilized. Data analysis was performed from September 2021 to January 2022.

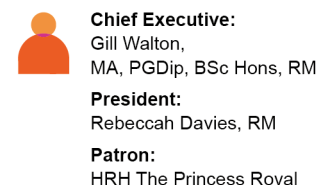
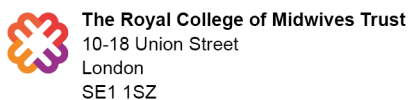
Exposures Continuous time, with knots at the onset of the first (July 1, 2020, summer surge) and second (November 1, 2020, fall surge) COVID-19 cases surges in the Southwest.

Main Outcomes and Measures Preferences around potential pregnancy in the next 3 months, measured using the validated Desire to Avoid Pregnancy (DAP) scale (range, 0-4, with 4 indicating a higher desire to avoid pregnancy).

Results The 627 participants in the analytical sample had a mean (SD) age of 24.9 (4.9) years; 320 (51.0%) identified as Latinx and 180 (28.7%) as White. Over the year before the first case surge in the US Southwest in summer 2020, population-averaged DAP scores decreased steadily over time (-0.06 point per quarter; 95% CI, -0.07 to -0.04 point per quarter; $P < .001$). During the summer 2020 surge, DAP scores stopped declining (0.05 point per quarter; 95% CI, -0.03 to 0.13 point per quarter; change in slope, $P < .001$). During the fall 2020 surge, however, DAP scores declined again at -0.11 point per quarter (95% CI, -0.26 to 0.04 point per quarter; change in slope, $P = .10$). Participants aged 15 to 24 years and those who were nulliparous and primiparous experienced greater declines in DAP score before the summer surge, and greater reversals of decline between summer and fall 2020, than did those who were aged 25 to 34 years and multiparous.

Conclusions and Relevance These findings suggest that the COVID-19 pandemic onset was associated with the stalling of a prior trend toward greater desire for pregnancy over time, particularly for people earlier in their reproductive

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lives. (Author)

Full URL: <https://doi.org/10.1001/jamanetworkopen.2022.20093>

2022-06948

All-Cause Maternal Mortality in the US Before vs During the COVID-19 Pandemic. Thoma ME, Declerq ER (2022), JAMA Network Open vol 5, no 6, June 2022, e2219133

This cross-sectional study analyzes the factors associated with deaths during and after pregnancy among Black, Hispanic, and White women. (Author)

Full URL: <https://doi.org/10.1001/jamanetworkopen.2022.19133>

2022-06806

Exposure to the early COVID-19 pandemic and early, moderate and overall preterm births in the United States: A conception cohort approach. Margerison CE, Bruckner TA, MacCallum-Bridges C, et al (2023), Paediatric and Perinatal Epidemiology vol 37, no 2, February 2023, pp 104-112

Background

The United States (US) data suggest fewer-than-expected preterm births in 2020, but no study has examined the impact of exposure to the early COVID-19 pandemic at different points in gestation on preterm birth.

Objective

Our objective was to determine—among cohorts exposed to the early COVID-19 pandemic—whether observed counts of overall, early and moderately preterm birth fell outside the expected range.

Methods

We used de-identified, cross-sectional, national birth certificate data from 2014 to 2020. We used month and year of birth and gestational age to estimate month of conception for birth. We calculated the count of overall (<37 weeks gestation), early (<33 weeks gestation) and moderately (33 to <37 weeks gestation) preterm birth by month of conception. We employed time series methods to estimate expected counts of preterm birth for exposed conception cohorts and identified cohorts for whom the observed counts of preterm birth fell outside the 95% detection interval of the expected value.

Results

Among the 23,731,146 births in our study, the mean prevalence of preterm birth among monthly conception cohorts was 9.7 per 100 live births. Gestations conceived in July, August or December of 2019—that is exposed to the early COVID-19 pandemic in the first or third trimester—yielded approximately 3245 fewer moderately preterm and 3627 fewer overall preterm births than the expected values for moderate and overall preterm. Gestations conceived in August and October of 2019—that is exposed to the early COVID-19 pandemic in the late second to third trimester—produced approximately 498 fewer early preterm births than the expected count for early preterm.

Conclusions

Exposure to the early COVID-19 pandemic may have promoted longer gestation among close-to-term pregnancies, reduced risk of later preterm delivery among gestations exposed in the first trimester or induced selective loss of gestations. (Author)

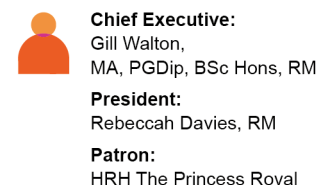
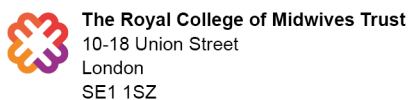
Full URL: <https://doi.org/10.1111/ppe.12894>

2022-06779

'I had so many life-changing decisions I had to make without support': a qualitative analysis of women's pregnant and postpartum experiences during the COVID-19 pandemic. Ashby GB, Riggan KA, Huang L, et al (2022), BMC Pregnancy and Childbirth vol 22, no 537, 4 July 2022

Background

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The COVID-19 pandemic has posed profound challenges for pregnant patients and their families. Studies conducted early in the pandemic found that pregnant individuals reported increased mental health concerns in response to pandemic-related stress. Many obstetric practices changed their healthcare delivery models, further impacting the experiences of pregnant patients. We conducted a survey study to explore the ways in which COVID-19 impacted the lives of pregnant and newly postpartum people.

Methods

A mixed-methods survey was distributed to all patients ≥ 18 years old who were pregnant between January 1st, 2020 – April 28, 2021 in a large Midwest health system. Open-ended survey responses were analyzed for common themes using standard qualitative methodology.

Results

Among the 1182 survey respondents, 647 women provided an open-ended response. Of these, 77% were in the postpartum period. The majority of respondents identified as white, were partnered or married, and owned their own home. Respondents reported feeling greater uncertainty, social isolation, as though they had limited social and practical support, and negative mental health effects as a result of the pandemic. Many cited sudden or arbitrary changes to their medical care as a contributing factor. Though in the minority, some respondents also reported benefits from the changes to daily life, including perceived improvements to medical care, better work-life balance, and opportunities for new perspectives.

Conclusions

This large qualitative dataset provides insight into how healthcare policy and lifestyle changes impacted pregnant and postpartum people. Respondents expressed similar levels of uncertainty and mental health concerns compared to other cohorts but less overall positivity. Our findings suggest greater attention be given to the impact of pandemic-related stress on pregnant and postpartum women. As the pandemic continues, these data identify areas where investment in additional support may have the greatest impact. (Author)

Full URL: <https://doi.org/10.1186/s12884-022-04816-7>

2022-06758

Remote care and triage of obstetric patients with COVID-19 in the community: operational considerations. Bircher CW, Wilkes M, Zahradka N, et al (2022), BMC Pregnancy and Childbirth vol 22, no 550, 8 July 2022

Background

During the SARS-CoV-2 (COVID-19) pandemic, routine antenatal care was disrupted, and pregnant women positive for COVID-19 were at increased risk of caesarean section, intensive care admission or neonatal unit admission for their baby. Virtual care and telehealth can reduce barriers to care and improve maternity outcomes, and adoption has been encouraged by health authorities in the United Kingdom.

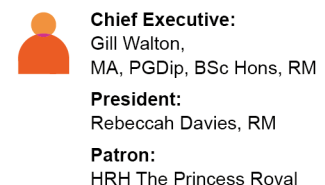
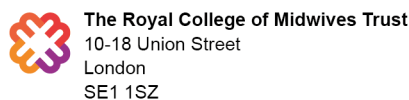
Methods

Norfolk and Norwich University Hospitals Trust deployed a flexible maternity virtual ward (MVW) service using the Current Health platform to care for pregnant women during the pandemic. Patients were monitored either intermittently with finger pulse oximetry or continuously with a wearable device. We outline the MVW technology, intervention and staffing model, triage criteria and patient feedback, as an example of an operational model for other institutions.

Results

Between October 2021 and February 2022, 429 patients were referred, of which 228 were admitted to the MVW. Total bed-days was 1,182, mean length of stay was 6 days (SD 2.3, range 1–14 days). Fifteen (6.6%) required hospital admission and one (0.4%) critical care. There were no deaths. Feedback alluded to feelings of increased safety, comfort, and ease with the technology.

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Conclusions

The MVW offered a safety net to pregnant women positive for COVID-19. It provided reassurance for staff, while relieving pressures on infrastructure. When setting up similar services in future, attention should be given to identifying clinical champions, triage criteria, technology and alarm selection, and establishing flexible escalation pathways that can adapt to changing patterns of disease. (Author)

Full URL: <https://doi.org/10.1186/s12884-022-04863-0>

2022-06594

Antibody levels to SARS-CoV-2 spike protein in mothers and children from delivery to six months later. Martin-Vicente M, Carrasco I, Muñoz-Gomez MJ, et al (2023), *Birth* vol 50, no 2, June 2023, pp 418-427

Introduction

Pregnant women are vulnerable to severe acute respiratory syndrome coronavirus (SARS-CoV-2) infection. Neutralizing antibodies against the SARS-CoV-2 spike (S) protein protect from severe disease. This study analyzes the antibody titers to SARS-CoV-2 S protein in pregnant women and their newborns at delivery, and six months later.

Methods

We conducted a prospective study on pregnant women with confirmed SARS-CoV-2 infection and newborns. Antibody (IgG, IgM, and IgA) titers were determined using immunoassays in serum and milk samples. An angiotensin-converting enzyme 2 (ACE2) receptor-binding inhibition assay to the S protein was performed on the same serum and milk samples.

Results

At birth, antibodies to SARS-CoV-2 spike protein were detected in 81.9% of mothers' sera, 78.9% of cord blood samples, and 63.2% of milk samples. Symptomatic women had higher antibody titers (IgG, IgM, and IgA) than the asymptomatic ones ($P < 0.05$). At six months postpartum, IgG levels decreased drastically in children's serum ($P < 0.001$) but remained high in mothers' serum. Antibody titers correlated positively with its capacity to inhibit the ACE2–spike protein interaction at baseline in maternal sera ($R_2 = 0.203$; $P < 0.001$), cord sera ($R_2 = 0.378$; $P < 0.001$), and milk ($R_2 = 0.564$; $P < 0.001$), and at six months in maternal sera ($R_2 = 0.600$; $P < 0.001$).

Conclusions

High antibody levels against SARS-CoV-2 spike protein were found in most pregnant women. Due to the efficient transfer of IgG to cord blood and high IgA titers in breast milk, neonates may be passively immunized to SARS-CoV-2 infection. Our findings could guide newborn management and maternal vaccination policies. (Author)

Full URL: <https://onlineibrary.wiley.com/doi/epdf/10.1111/birt.12667>

2022-06425

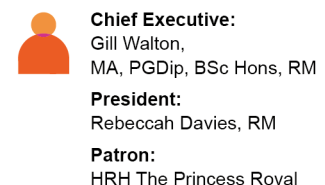
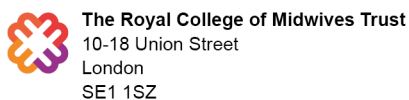
Seroprevalence of SARS-CoV-2 virus antibodies and sociodemographic features of pregnant women in Mogadishu, Somalia: a cross-sectional survey study. Nur MAS, Dahie HA, Hassan NA, et al (2022), *BMJ Open* vol 12, no 6, June 2022, e059617

Objective Recent investigations have revealed that COVID-19 during pregnancy substantially increases the risk of harmful outcomes for mothers and neonates, including preterm death and stillbirth as well as severe maternal morbidity and mortality. Hence, the urgent need to understand the prevalence rate and level of awareness about COVID-19 (SARS-CoV-2 virus infection) and the practice of preventive measures against the disease among pregnant women in Somalia. This study aims to determine the prevalence of COVID-19 among pregnant women seeking antenatal care in the Benadir region (Mogadishu) of Somalia and to assess their knowledge and preventive practices towards COVID-19.

Setting A hospital-based cross-sectional study involving two major referral maternity hospitals in Mogadishu, Somalia.

Participants Pregnant women seeking antenatal services were included in our study.

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Methods A total of 477 blood samples were collected from pregnant women attending the two referral hospitals in Mogadishu and screened for COVID-19. The participants were subjected to questionnaire interviews where their detailed history and practice of prevention against COVID-19 were evaluated.

Results The results showed that 175 (36.7%) were positive while 302 (63.3%) samples were negative for SARS-CoV-2 virus antibodies. Also, out of the 141 pregnant women who had two children or less, 19.4% were positive for IgG/IgM antibodies. Participants who had close contact with patients with COVID-19 were significantly associated for testing positive with a p value 0.0001. Students, teachers, employed people and individuals reported COVID-19 like symptoms were all associated with COVID-19 seropositivity outcomes.

Conclusion Pregnant women and those with commorbidities should be given special preventive care and health education about COVID-19 transmission. (Author)=[Erratum: Lancet, vol 12, no 6, June 2022, 059617, online, <http://dx.doi.org/10.1136/bmjopen-2021-059617corr1>].

Full URL: <http://dx.doi.org/10.1136/bmjopen-2021-059617>

2022-06405

Maternal Perinatal Telemonitoring in the Context of the Coronavirus Disease 2019 Pandemic in a Tertiary Health

Center in Peru. Novoa RH, Meza-Santibañez L, Melgarejo WE, et al (2022), American Journal of Perinatology vol 39, no 15, November 2022, pp 1711-1718

Objective To describe the characteristics of a telemonitoring program that was rapidly implemented in our institution as a response to the coronavirus disease 2019 (COVID-19) pandemic, as well as the maternal and perinatal outcomes of women who attended this program.

Study Design Retrospective study of patients via phone-call telemonitoring during the peak period of the COVID-19 pandemic (May 2020–August 2020). Maternal and perinatal outcomes were collected and described. Health providers' satisfaction with the telemonitoring program was assessed via an email survey.

Results Twenty-three (69.7%) health providers answered the survey. The mean age was 64.5 years, 91.3% were OB/GYN (obstetrician-gynecologist) doctors, and 95% agreed that telemonitoring is an adequate method to provide health care when in-person visits are difficult. The 78.7% of scheduled telemonitoring consultations were finally completed. We performed 2,181 telemonitoring consultations for 616 pregnant women and 544 telemonitoring consultations for puerperal women. Other medical specialties offering telemonitoring included gynecology, reproductive health, family planning, cardiology, endocrinology, and following up with patients with reactive serology to SARS-CoV-2 (severe respiratory syndrome coronavirus 2). The majority of the population attending our telemonitoring program were categorized as the lowest strata, i.e., III and IV, according to the Human Development Index, and approximately 42% were deemed as high-risk pregnant women. Additionally, we reported the perinatal outcomes of 424 (63%) pregnant women, the most relevant finding being that approximately 53% of them had cesarean sections.

Conclusion Telemonitoring is an adequate method of continuing the provision of prenatal care when in-person visits are difficult in situations such as the COVID-19 pandemic. Telemonitoring is feasible even in institutions with no or little experience in telemedicine. The perinatal outcomes in women with telemonitoring seem to be similar to that in the general population. (Author)

2022-06397

Association between SARS-CoV-2 Infection and Adverse Perinatal Outcomes in a Large Health Maintenance

Organization. Getahun D, Peltier MR, Lurvey LD, et al (2024), American Journal of Perinatology vol 41, no 2, January 2024, pp 199-207

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HRH The Princess Royal

Objective This study aimed to examine whether severe acute respiratory syndrome-coronavirus-2 (SARS-CoV-2) infection during pregnancy is associated with increased odds of perinatal complications and viral transmission to the infant.

Study Design A retrospective cohort study of women who delivered at Kaiser Permanente Southern California hospitals (April 6, 2020–February 28, 2021) was performed using data extracted from electronic health records (EHRs). During this time polymerase chain reaction (PCR)-based tests for SARS-CoV-2 was universally offered to all pregnant women at labor and delivery admission, as well as earlier in the pregnancy, if they were displaying symptoms consistent with SARS-CoV-2 infection or a possible exposure to the virus. Adjusted odds ratio (aOR) was used to estimate the strength of associations between positive test results and adverse perinatal outcomes.

Results Of 35,123 women with a singleton pregnancy, 2,203 (6%) tested positive for SARS-CoV-2 infection with 596 (27%) testing positive during the first or second trimester and 1,607 (73%) during the third trimester. Women testing positive were younger than those who tested negative (29.7 [5.4] vs. 31.1 [5.3] years; mean [standard deviation (SD)]; $p < .001$). The SARS-CoV-2 infection tended to increase the odds of an abnormal fetal heart rate pattern (aOR: 1.10; 95% confidence interval [CI]: 1.00, 1.21; $p = 0.058$), spontaneous preterm birth (aOR: 1.28; 95% CI: 1.03, 1.58; $p = 0.024$), congenital anomalies (aOR: 1.69; 95% CI: 1.15, 2.50; $p = 0.008$), and maternal intensive care unit admission at delivery (aOR: 7.44; 95% CI: 4.06, 13.62; $p < 0.001$) but not preeclampsia/eclampsia (aOR: 1.14; 95% CI: 0.98, 1.33; $p = 0.080$). Eighteen (0.8%) neonates of mothers who tested positive also had a positive SARS-CoV-2 test after 24 hours of birth, but all were asymptomatic during the neonatal period.

Conclusion These findings suggest that prenatal SARS-CoV-2 infection increases the odds of some adverse perinatal outcomes. The likelihood of vertical transmission from the mother to the fetus was low (0.3%), suggesting that pregnancy complications resulting from SARS-CoV-2 infection pose more risk to the baby than transplacental viral transmission. (Author)

2022-06380

Placental pathology in sudden intrauterine death (SIUD) in SARS-CoV-2-positive oligosymptomatic women. Horn L-C, Krücken I, Hiller GGR, et al (2023), Archives of Gynecology and Obstetrics vol 307, no 6, June 2023, pp 1811 - 1822

Background

Pregnant women are also susceptible to SARS-CoV-2. Although an infection of the placenta may be rare, pregnancy may occasionally be affected by intrauterine failure. The knowledge of placental morphology on sudden intrauterine demise is still limited.

Methods

Fetal and placental tissue of two cases of sudden intrauterine death in the second trimester were analysed morphologically and by immunohistochemistry. One case was evaluated by RT-PCR.

Results

Both mothers were tested positive for the Alpha variant of SARS-CoV-2 but were oligosymptomatic for COVID-19. Unexpected sudden intrauterine death (SIUD) occurred at 15 + 2 and 27 + 3 weeks of gestation. One fetus demonstrated an intrauterine growth restriction. No malformations nor inflammatory changes were observed in either fetus on autopsy. In contrast to the placentas, the fetal tissue was negative for SARS-CoV-2 on immunohistochemical and RT-PCR analyses. Macroscopically, the placentas showed an increased consistency with a white, reticular cutting surface covering about 95% of the whole placenta. Only very focal histiocytic chronic intervillitis was noted histologically. Massive perivillous fibrin deposits with extensive necroses of the villous trophoblast were present in more than 90% of the placental tissue. Immunohistochemical staining was strong and diffusely positive for SARS-CoV-2 in the villous trophoblast and rarely within the villous stromal cells. Placental SARS-CoV-2 infection was confirmed by RT-PCR.

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Conclusion

Sudden intrauterine death may occur in mothers who are oligosymptomatic for COVID-19. Acute placental failure is responsible for SIUD, demonstrated by massive perivillous fibrin deposits and extensive necroses of the villous trophoblast with SARS-CoV-2-positivity based on immunohistochemical staining and RT-PCR. Detailed histopathological examination of placental and fetal tissue is mandatory to verify SARS-CoV-2 and to evaluate the pathogenesis and functionality of this disease. (Author)

Full URL: <https://doi.org/10.1007/s00404-022-06614-0>

2022-06314

A mother's perspective of consent for maternal and neonatal COVID-19 testing: can we do more?. East NA, Ramaiah S, Morris K, et al (2022), British Journal of Midwifery vol 30, no 7, July 2022, pp 376-382

Background

There is ongoing research on the effects of COVID-19 on pregnancy and whether vertical viral transmission occurs.

Aims

This study aimed to determine maternal opinions of COVID-19 testing for pregnant women and newborns in order to influence future clinical practice while advancing global knowledge of the impact of testing on patient experiences.

Methods

This service evaluation assessed the opinions of 292 pregnant women who were tested for COVID-19 along with their newborn babies using nasopharyngeal swabs and the SARS-CoV-2 reverse transcription polymerase chain reaction test between 28 April and 21 May 2020.

Results

Many women felt their own (60%) and their baby's (61%) swab was compulsory and did not feel sufficiently informed about the risks and benefits for themselves (43%) or their baby (52%) being tested. Some women did not understand the implications of a positive test for themselves (43%) or their baby (42%). Most participants reported they would agree to themselves (97%) and their baby (86%) being tested in future pregnancies.

Conclusion

Communication to pregnant women regarding the COVID-19 swabbing process is critical and requires improvement. This service evaluation highlighted where women felt under-informed. These areas should be covered in more detail for consenting women for COVID-19 testing in future. (Author)

2022-06267

Health care in pregnancy during the COVID-19 pandemic and pregnancy outcomes in six low- and-middle-income countries: Evidence from a prospective, observational registry of the Global Network for Women's and Children's Health. Naqvi S, Naqvi F, Saleem S, et al (2022), BJOG: An International Journal of Obstetrics and Gynaecology vol 129, no 8, July 2022, pp 1298-1307

Objective

To assess, on a population basis, the medical care for pregnant women in specific geographic regions of six countries before and during the first year of the coronavirus disease 2019 (COVID-19) pandemic in relationship to pregnancy outcomes.

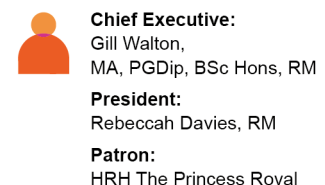
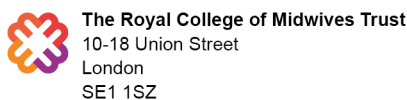
Design

Prospective, population-based study.

Setting

Communities in Kenya, Zambia, the Democratic Republic of the Congo, Pakistan, India and Guatemala.

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Population

Pregnant women enrolled in the Global Network for Women's and Children's Health's Maternal and Newborn Health Registry.

Methods

Pregnancy/delivery care services and pregnancy outcomes in the pre-COVID-19 time-period (March 2019–February 2020) were compared with the COVID-19 time-period (March 2020–February 2021).

Main outcome measures

Stillbirth, neonatal mortality, preterm birth, low birthweight and maternal mortality.

Results

Across all sites, a small but statistically significant increase in home births occurred between the pre-COVID-19 and COVID-19 periods (18.9% versus 20.3%, adjusted relative risk [aRR] 1.12, 95% CI 1.05–1.19). A small but significant decrease in the mean number of antenatal care visits (from 4.1 to 4.0, $p < 0.0001$) was seen during the COVID-19 period. Of outcomes evaluated, overall, a small but significant decrease in low-birthweight infants in the COVID-19 period occurred (15.7% versus 14.6%, aRR 0.94, 95% CI 0.89–0.99), but we did not observe any significant differences in other outcomes. There was no change observed in maternal mortality or antenatal haemorrhage overall or at any of the sites.

Conclusions

Small but significant increases in home births and decreases in the antenatal care services were observed during the initial COVID-19 period; however, there was not an increase in the stillbirth, neonatal mortality, maternal mortality, low birthweight, or preterm birth rates during the COVID-19 period compared with the previous year. Further research should help to elucidate the relationship between access to and use of pregnancy-related medical services and birth outcomes over an extended period. (Author)

Full URL: <https://doi.org/10.1111/1471-0528.17175>

2022-06244

The impact of lockdown on maternal and neonatal morbidity in gestational diabetes mellitus. Tollini V, Lemaitre M, Garabedian C, et al (2022), American Journal of Obstetrics & Gynecology (AJOG) vol 227, no 5, November 2022, pp 775-777

Research letter examining the impact of the COVID-19 lockdown on maternal and fetal morbidity in pregnant women with gestational diabetes mellitus (GDM). Results show that glycemic control was poorer in the lockdown period compared with the year before. (LDO)

Full URL: <https://doi.org/10.1016/j.ajog.2022.06.033>

2022-06242

Assessment of SARS-CoV-2 serostatus and hypertensive disorders of pregnancy. Triebwasser JE, Dhudasia MB, Mukhopadhyay S, et al (2022), American Journal of Obstetrics & Gynecology (AJOG) vol 227, no 4, October 2022, pp 664-666.e1

Research letter exploring whether exposure to SARS-CoV-2 is associated with hypertensive disorders of pregnancy (HDP). Results found no association between SARS-CoV-2 and HDP using SARS-CoV-2 antibodies and PCR testing. (LDO)

Full URL: <https://doi.org/10.1016/j.ajog.2022.06.012>

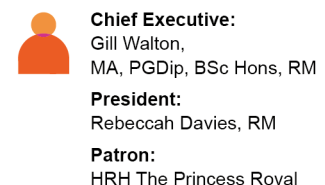
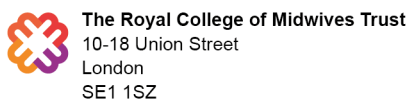
2022-06135

Increased levels of soluble fms-like tyrosine kinase-1 are associated with adverse outcome in pregnant women with COVID-19. Torres-Torres J, Espino-y-Sosa S, Poon LC, et al (2022), Ultrasound in Obstetrics and Gynecology vol 59, no 2, pp 202-208

Objective

In addition to the lungs, the placenta and the endothelium can be affected by severe acute respiratory syndrome

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coronavirus 2 (SARS-CoV-2). Soluble fms-like tyrosine kinase-1 (sFlt-1) and placental growth factor (PlGF) are markers of endothelial dysfunction and could potentially serve as predictors of severe coronavirus disease 2019 (COVID-19). We aimed to investigate the association of serum concentrations of sFlt-1 and PlGF with the severity of COVID-19 in pregnancy.

Methods

This was a prospective cohort study carried out in a tertiary care hospital in Mexico City, Mexico. Symptomatic pregnant women with a positive reverse-transcription quantitative polymerase chain reaction test for SARS-CoV-2 infection who fulfilled the criteria for hospitalization were included. The primary outcome was severe pneumonia due to COVID-19. Secondary outcomes were intensive care unit (ICU) admission, viral sepsis and maternal death. sFlt-1 levels were expressed as multiples of the median (MoM). The association between sFlt-1 and each adverse outcome was explored by logistic regression analysis, adjusted for gestational age for outcomes occurring in more than five patients, and the predictive performance was assessed by receiver-operating-characteristics-curve analysis.

Results

Among 113 pregnant women with COVID-19, higher sFlt-1 MoM was associated with an increased probability of severe pneumonia (adjusted odds ratio (aOR), 1.817 (95% CI, 1.365–2.418)), ICU admission (aOR, 2.195 (95% CI, 1.582–3.047)), viral sepsis (aOR, 2.318 (95% CI, 1.407–3.820)) and maternal death (unadjusted OR, 5.504 (95% CI, 1.079–28.076)). At a 10% false-positive rate, sFlt-1 MoM had detection rates of 45.2%, 66.7%, 83.3% and 100% for severe COVID-19 pneumonia, ICU admission, viral sepsis and maternal death, respectively. PlGF values were similar between women with severe and those with non-severe COVID-19 pneumonia.

Conclusion

sFlt-1 MoM is higher in pregnant women with severe COVID-19 and has the capability to predict serious adverse pregnancy events, such as severe pneumonia, ICU admission, viral sepsis and maternal death. © 2021 International Society of Ultrasound in Obstetrics and Gynecology. (Author)

2022-06115

Knowledge and Expectations of Perinatal Care Among Pregnant Women During the COVID-19 Pandemic. Lim CCW, Goh MSSM, Chua K-H, et al (2022), 14 July 2022, online

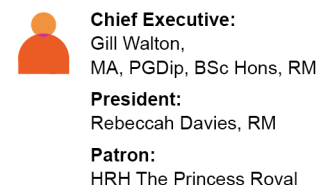
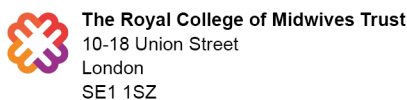
Introduction: This study aimed to investigate the knowledge and expectations of pregnant women on perinatal care during the coronavirus disease 2019(COVID-19) pandemic.

Methods: A cross-sectional survey was conducted among pregnant women ≥ 21 years, without a history of confirmed COVID-19, attending antenatal clinics between August and September 2020 via a secure online platform. The survey consisted of 10 questions which evaluated the knowledge and expectations on perinatal and neonatal care during the current pandemic.

Results: A total of 313 pregnant women completed the survey. The mean age of the participants was 30 years (SD 4; range 22-43 years). The median gestational age was 25 weeks (range 4-40 weeks). The participants were predominantly multiparous (54%) and almost all (98%) had completed secondary level education. Majority of participants were aware of the spread of COVID-19 by respiratory secretions and contact (90%), and the importance of prevention strategies (94%). Up to 72% agreed or strongly agreed that in-utero transmission of SARS-CoV-2 was possible. Most were unsure of the optimal mode of delivery (77%) and only 22% believed that breastfeeding was safe in a pregnant woman with active COVID-19. Although 46% were concerned about increased transmission risk with antenatal clinic visits, only 37% were agreeable to teleconferencing of clinic appointments. Maternal age >35 years was significantly associated with agreement with separation of mother-infant after birth [AOR 1.89 (95% CI 1.05, 3.39)], restrictions of visitors during the postnatal period [1.92 (1.05, 3.49)] and having their confinement practices were affected [2.3 (1.26, 4.17)]. Pregnant women who were multiparous disagreed that breastfeeding was safe in women with active COVID-19 [0.42 (0.23, 0.75)].

Conclusions: There was significant uncertainty about the optimal delivery method and safety of breastfeeding with COVID-19 among expectant mothers, along with variable agreement with alterations to routine perinatal care.

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2022-06078

Long term implications of covid-19 in pregnancy. Abbas-Hanif A, Modi N, Majeed A (2022), *BMJ* vol 377, no 8342, 31 May 2022, e071296

We must characterise the risks and take urgent steps to reduce harm. (Author)

Full URL: <https://doi.org/10.1136/bmj-2022-071296>

2022-06012

Maternal and Perinatal Outcomes Associated With the Omicron Variant of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Infection. Seasey AR, Blanchard CT, Arora N, et al (2022), *Obstetrics & Gynecology* vol 140, no 2, August 2022, pp 262-265

Two years into the coronavirus disease 2019 (COVID-19) pandemic, we have now seen three main variant waves. We performed a retrospective cohort study of all pregnant patients with COVID-19 at our institution from March 22, 2020, to February 26, 2022, to evaluate disease severity and perinatal outcomes among the variants. Patients were categorized as pre-Delta (March 22, 2020–May 31, 2021), Delta (July 1, 2021–December 15, 2021), or Omicron (December 16, 2021– February 26, 2022) based on variant tracking from the Centers for Disease Control and Prevention and genotype sequencing at our institution. There were fewer cases of severe–critical disease (1.8% Omicron vs 13.3% pre-Delta and 24.1% Delta) and adverse perinatal outcomes during the Omicron wave compared with the pre-Delta and Delta waves. (Author)

Full URL: <https://doi.org/10.1097/AOG.0000000000004849>

2022-06009

Outpatient Use of Monoclonal Antibodies in Pregnant Individuals With Mild or Moderate Coronavirus Disease 2019 (COVID-19). Eid J, Abdelwahab M, Williams H, et al (2022), *Obstetrics & Gynecology* vol 140, no 1, July 2022, pp 74-76

Treatment with monoclonal antibodies has been shown to significantly reduce the risk of hospitalization and disease progression among high-risk patients with coronavirus disease 2019 (COVID-19). Pregnant individuals were excluded from the original trials. In this single-center retrospective cohort study, we evaluated whether monoclonal antibody treatment in pregnant individuals is associated with decreased risk of hospitalization. Outcomes of patients who received the treatment were compared with those who were eligible but did not receive the treatment. Analyses were stratified by vaccination status. Unvaccinated pregnant patients with mild or moderate COVID-19 who received outpatient monoclonal antibodies were less likely to be admitted to the hospital (4.2% vs 15.7%, odds ratio 0.24, 95% CI 0.07–0.74), whereas among vaccinated patients, the treatment was not associated with a lower rate of hospitalization (2.3% vs 0%, P=.99). (Author)

Full URL: <https://doi.org/10.1097/AOG.0000000000004826>

2022-05972

Doppler ultrasound findings in symptomatic pregnant women diagnosed with COVID-19. Erdem S, Kulahcioglu MI (2022), *Journal of Obstetrics and Gynaecology* 4 June 2022, online

The primary aim of this study was to investigate the potential impact of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection on maternal and foetal Doppler findings. Doppler ultrasound findings were compared in 40 pregnant women diagnosed with COVID-19 disease who required hospitalisation (group 1) and 30 healthy pregnant women (group 2). Maternal characteristics and birth histories were recorded. Body mass index, gestational week at birth, type of delivery, oligohydroamnios, pre-term birth (<37 weeks), low birth weight (<10 percentile), perinatal death and f1st and 5th minute Apgar scores were recorded. Birth weights and foetal biophysical profile (BPP) scores in group 1 were significantly lower than those in group 2. There was a statistically significant between-group difference in the umbilical artery pulsatility index (PI), umbilical artery resistive index (RI), middle cerebral artery (MCA) PI, MCA RI, mean uterine artery (UtA) PI, mean UtA RI and cerebroplacental ratio (CPR), the

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parameters used to evaluate foetal-maternal blood flow. In the pregnant group diagnosed with COVID-19 and hospitalised, all foetal-maternal Doppler indicators of foetal-maternal blood flow were impaired, and birth weights and BPP scores in these patients were statistically significantly lower than those in the healthy controls.

Impact statement

What is already known on this subject? Foetal and maternal vascular malperfusion characterised by decidual arteriopathy have been reported in pathologies of placentas from pregnant women with SARS-CoV-2 infection.

What the results of this study add? It was determined that COVID-19 disrupted foetal and maternal blood flow.

What the implications are of these findings for clinical practice and/or further research? Foetal biometric measurements and foetal Doppler may be useful in the follow-up of perinatal outcomes in pregnant women with COVID-19. (Author)

2022-05963

Clinical outcomes in pregnant women with coronavirus disease 2019 in a perinatal medical centre in Japan: a retrospective study of the first 1 year of the pandemic. Takahashi K, Kobayashi Y, Sato M, et al (2022), Journal of Obstetrics and Gynaecology 9 June 2022, online

In this retrospective study, we analysed clinical and demographic data from the medical records of 31 pregnant women with coronavirus disease 2019 (COVID-19) who were treated at our hospital between April 2020 and April 2021. The most common symptom was a fever; 10% of patients were asymptomatic. One patient with rapidly worsening pneumonia needed a Caesarean Section at 30 weeks and was admitted for intensive care. Twelve patients received perinatal care in our hospital (10 live births, one stillbirth, and one artificial abortion). Six patients delivered vaginally; the others delivered via caesarean section. Two patients had complications, including severe hypertensive disorders and preeclampsia. All patients recovered from COVID-19. Severe acute respiratory syndrome coronavirus 2 was not detected in the placenta, umbilical cord, cord blood, amniotic fluid, vaginal fluid, or breast milk in any patient. There were no neonatal adverse outcomes. The possibility of transmitting the coronavirus to pregnancy-related samples was low.

IMPACT STATEMENT

What is already known on the subject? COVID-19 has been affecting different countries in diverse ways, and the incidence, mortality, and morbidity rates of patients with COVID-19 vary widely by country or region and race. These differences in results may reflect racial differences and differences in national health care systems. Moreover, the information about the perinatal outcomes of pregnant women with COVID-19 and their newborns from Japan is limited.

What do the results of this study add to what is known? We described the perinatal outcomes of 31 Japanese pregnant women with COVID-19 who were managed safely in a perinatal medical centre in Tokyo Japan, during the first 1 year of the pandemic.

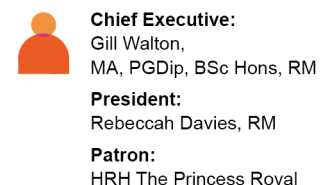
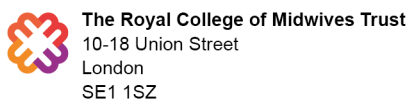
What are the implications of these findings for clinical practice and/or further research? Severe pneumonia and perinatal complications may occur, although no maternal and neonatal deaths were observed for COVID-19-positive pregnant women in our facility. Therefore, it is important to prevent this infection during pregnancy with the provision of effective medical care. (Author)

2022-05930

Molecular and Physiological Aspects of SARS-CoV-2 Infection in Women and Pregnancy. Liu A, Xavier JR, Singh Y, et al (2022), 24 February 2022, online

Whilst scientific knowledge about SARS-CoV-2 and COVID-19 is rapidly increasing, much of the effects on pregnant

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women is still unknown. To accommodate pregnancy, the human endometrium must undergo a physiological transformation called decidualization. These changes encompass the remodeling of endometrial immune cells leading to immunotolerance of the semi-allogenic conceptus as well as defense against pathogens. The angiotensin converting enzyme 2 (ACE2) plays an important regulatory role in the renin-angiotensin-system (RAS) and has been shown to be protective against comorbidities known to worsen COVID-19 outcomes. Furthermore, ACE2 is also crucial for decidualization and thus for early gestation. An astounding gender difference has been found in COVID-19 with male patients presenting with more severe cases and higher mortality rates. This could be attributed to differences in sex chromosomes, hormone levels and behavior patterns. Despite profound changes in the female body during pregnancy, expectant mothers do not face worse outcomes compared with non-pregnant women. Whereas mother-to-child transmission through respiratory droplets during labor or in the postnatal period is known, another question of in utero transmission remains unanswered. Evidence of placental SARS-CoV-2 infection and expression of viral entry receptors at the maternal-fetal interface suggests the possibility of in utero transmission. SARS-CoV-2 can cause further harm through placental damage, maternal systemic inflammation, and hindered access to health care during the pandemic. More research on the effects of COVID-19 during early pregnancy as well as vaccination and treatment options for gravid patients is urgently needed. (Author)

Full URL: <https://doi.org/10.3389/fgwh.2022.756362>

2022-05913

Accessing Maternal Health Care in the Midst of the COVID-19 Pandemic: A Study in Two Districts of Assam, India.

Padhye R, Purushotham A, Paul M, et al (2022), 31 March 2022, online

Background: COVID-19 pandemic and the subsequent national lockdown in India compelled the health system to focus on COVID-19 management. Information from the field indicated the impact of COVID-19 on the provision of maternal health services. This research presents users' and providers' perspectives about the effect of the pandemic on maternal health services in select districts of Assam.

Methods: The study was undertaken to understand the status of maternal health service provision and challenges faced by 110 pregnant and recently delivered women, 38 health care providers and 18 Village Health Sanitation and Nutrition Committee members during COVID-19 pandemic. Telephonic interviews were conducted with the users identified through simple random sampling. Healthcare providers and the community members were identified purposively.

Results: Most of the interviewed women reported that they could access the health services, but had to spend out-of-pocket (for certain services) despite accessing the services from government health facilities. Healthcare providers highlighted the lack of transportation facilities and medicine unavailability as challenges in providing routine services. The study revealed high proportion of Caesarian section deliveries (42.6%, n = 32) and stillbirths (10.6%, n = 8).

Discussion: This research hypothesizes the supply-side (health system) factors and demand-side (community-level) factors converged to affect the access to maternal health services. Health system preparedness by ensuring availability of all services at the last mile and strengthening existing community-reliant health services is recommended for uninterrupted good quality and affordable maternal health service provision. (Author)

Full URL: <https://doi.org/10.3389/fgwh.2022.750520>

2022-05910


Reported information sharing and satisfaction with maternity care providers during the COVID-19 pandemic:

Associations with socioeconomic status and shifts to telehealth. Thayer Z, Gildner T (2023), Birth vol 50, no 2, June 2023, pp 396-406


Background

The COVID-19 pandemic has dramatically affected pregnant people's prenatal care, labor, and delivery experiences.

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Given these rapid changes, providers have needed to be proactive in sharing information about COVID-19-related care impacts. The purpose of this study was to investigate: (a) Whether patient demographics or disrupted care (eg, canceled appointments and rapid shift to telehealth) is associated with patient-reported information sharing from the providers; and (b) Whether patient-reported provider information sharing or disruptions to care are associated with patient satisfaction with provider.

Methods

Data come from a convenience sample of 1999 pregnant people living in the United States who completed an online survey between April 16 and May 7 2020.

Results

Thirty-eight percent of participants said that their provider had not discussed how the pandemic would affect their care during pregnancy, labor, or delivery. Participants with lower education, less income, or whose appointments had been canceled or rescheduled because of the pandemic were significantly less likely to report information sharing. Provider satisfaction was significantly lower among participants who did not report information sharing, those who had appointments by way of telehealth, and those who reported that all their appointments had been rescheduled/canceled.

Discussion

At the beginning of the pandemic, there were significant socioeconomic inequities in reported information sharing by the providers, which in turn was negatively associated with provider satisfaction. Providers need to be aware of the role implicit bias may play in information sharing—both generally and during public health crises—and consider ways to reduce the impacts of disrupted care delivery on patient satisfaction. If left unaddressed, perceived poor provider communication and associated low satisfaction with providers could contribute to adverse perinatal outcomes.

(Author)

Full URL: <https://doi.org/10.1111/birt.12660>

2022-05873

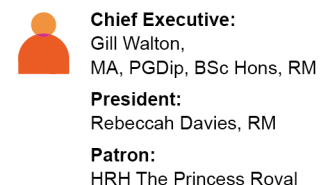
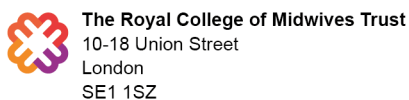
Impact of COVID-19 on Gender Equality, Sexual and Reproductive Health Rights of Adolescent Girls and Young Women: A Narrative Review.

Kumar N, Singh AK (2022), *Current Women's Health Reviews* vol 18, no 3, 2022, pp 6-12

Adolescent girls and young women constitute a vulnerable population worldwide and an easy target to secondary impacts of a pandemic due to societal norms, existing age, and gender-based inequalities, leading to a condition known as “second pandemic”. Due to local and national lockdowns to prevent coronavirus spread, educational institutions, workplaces, health services have been shut down making adolescent girls and women prone to sexual, physical exploitation, gender-based violence, educational, financial loss, lack of sexual and reproductive health services. The present review briefs some of these secondary impacts of the COVID-19 pandemic on adolescent girls and women, which if taken care of can prevent many long-term consequences. Methodology: The literature was searched from governmental, non-governmental sites and agencies, like WHO, UN, UNICEF, Guttmacher Institute, International Labor Organization, and English peer-reviewed journals, using the USA National Library of Medicine (Pubmed) database, the regional portal of Virtual Health Library, and Scientific Electronic Library Online. The data from the onset of the COVID-19 pandemic till March 2021 on the impact of COVID-19 on women and children was searched and studied. The descriptors used were school drop-out children, adolescent girls, women suffering at home/work, unmet need for contraception, unwanted pregnancies, unsafe abortion, child marriages, and female genital mutilation. Results and Conclusion: COVID-19 pandemic has resulted in a “hidden pandemic” against women and children. There is a skyrocketing rise in violence against women/girls, teenage pregnancies, school drop-outs, child marriages, abuse, female genital mutilation. Hence, women and adolescent girls should be protected from the shadowing effects of the pandemic. (Author)

2022-05865

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Association between health literacy and COVID-19 prevention behaviors among pregnant and postpartum women.

Shigemi D, Tabuchi T, Okawa S, et al (2022), Journal of Maternal-Fetal and Neonatal Medicine vol 35, no 25, 2022, pp 9971-9977

Objective

To investigate the association between health literacy and COVID-19 prevention behaviors among pregnant and postpartum women in Japan.

Methods

In this cross-sectional, web-based, self-reported questionnaire survey, we investigated the association between health literacy and COVID-19 prevention behaviors among pregnant and postpartum women in Japan. A multivariable logistic regression analysis was performed to evaluate the association with adjustment for socioeconomic characteristics.

Results

There were 926 respondents, comprising 368 pregnant and 558 postpartum women. Women with high health literacy scores accounted for 42% of the respondents. This group had a significantly higher proportion of actively adopting preventive behaviors than the low health literacy group (33.5 vs. 25.4%, $p = .008$). The multivariable logistic regression analysis showed high health literacy was significantly associated with high preventive behaviors scores compared to low health literacy (adjusted odds ratio, 1.66; 95% confidence interval, 1.22–2.27).

Conclusion

Higher health literacy was significantly associated with a higher proportion of COVID-19 prevention behaviors among women who are pregnant or postpartum. (Author)

2022-05735

Placental Vascular and Inflammatory Findings from Pregnancies Diagnosed with Coronavirus Disease 2019: A Systematic Review and Meta-analysis.

Hessami K, Aagaard KM, Castro EC, et al (2022), American Journal of Perinatology vol 39, no 15, November 2022, pp 1643-1653

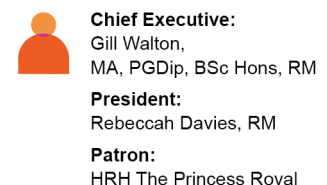
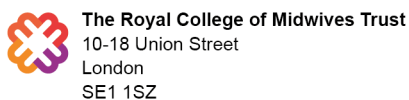
Objective We aimed to perform a meta-analysis of the literature concerning histopathologic findings in the placentas of women with SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2) infection during pregnancy.

Study Design Searches for articles in English included PubMed, Web of Science, Google Scholar, and reference lists (up to April 2021). Studies presenting data on placental histopathology according to the Amsterdam Consensus Group criteria in SARS-CoV-2 positive and negative pregnancies were identified. Lesions were categorized into: maternal (MVM) and fetal (FVM) vascular malperfusion, acute placental inflammation with maternal (MIR) and fetal (FIR) inflammatory response, chronic inflammatory lesions (CILs), and increased perivillous fibrin deposition (PVFD).

Results A total of 15 studies reporting on 19,025 placentas, $n = 699$ of which were derived from women who were identified as being infected with SARS-CoV-2 and 18,326 as SARS-CoV-2-negative controls, were eligible for analysis. No significant difference in incidence of MVM (odds ratio [OR]: 1.18, 95% confidence interval [CI]: 0.73–1.90), FVM (OR: 1.23, 95% CI: 0.63–2.42), MIR (OR: 0.66, 95% CI: 0.29–1.52) or FIR (OR: 0.85, 95% CI: 0.44–1.63), and CILs (OR: 0.97, 95% CI: 0.55–1.72) was found between placentae from gravida identified as being SARS-CoV-2 infected. However, placenta from gravida identified as being infected with SARS-CoV-2 were associated with significantly increased occurrence of PVFD (OR: 2.77, 95% CI: 1.06–7.27). After subgroup analyses based on clinical severity of COVID-19 infection, no significant difference was observed in terms of reported placental pathology between symptomatic or asymptomatic SARS-CoV-2 gravidae placenta.

Conclusion Current evidence based on the available literature suggests that the only pathologic finding in the placentae of women who are pregnant identified as having been infected with SARS-CoV-2 was an increased prevalence of PVFD. (Author)

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2022-05692

Point-of-care ultrasound for diagnosis of pneumothorax in a pregnant COVID-19 patient in the emergency

department. Gulen M, Satar S, Unlu N, et al (2022), Journal of Obstetrics and Gynaecology vol 42, no 6, 2022, pp 2515-2518

Case report of a pregnant woman admitted to the emergency department with complaints of dyspnoea, chest pain and a cough at 16 weeks' gestation. The patient was subsequently diagnosed with pneumothorax and COVID-19 pneumonia. (LDO)

2022-05652

Experiences of women who gave birth during the pandemic. Hancock D (2022), Journal of Health Visiting vol 10, no 5, May

2022, pp 195-198

The Care Quality Commission surveyed women who had gone through pregnancy and birth during the national lockdown in 2021. Dave Hancock looks at some positive results and key areas for improvement in maternity care.

(Author)

2022-05594

The outcomes of favipiravir exposure in pregnancy: a case series. Ertem O, Guner O, Incir C, et al (2023), Archives of Gynecology and Obstetrics vol 307, no 5, May 2023, pp 1385 - 1395

Purpose

As in vitro and in vivo studies reported antiviral efficacy against RNA viruses, favipiravir, a pyrazinecarboxamide derivative, has become one of the treatment options for COVID-19 in some countries including Turkey. Preclinical studies demonstrated the risk for teratogenicity and embryotoxicity. Hence, the drug is contraindicated during pregnancy. Although limited in numbers, case-based evaluations indicate that favipiravir might not be a major teratogen in human pregnancies. This study aimed to present and analyze the outcomes of favipiravir exposure during pregnancy.

Methods

In this case series, the outcomes of nine pregnancies that were referred to the Teratology Information Service of Dokuz Eylul University Faculty of Medicine, Department of Medical Pharmacology between 01 April 2020 and 30 November 2021 were retrospectively evaluated.

Results

One spontaneous abortion, two elective terminations, one preterm live delivery and five term live deliveries were detected. The premature newborn was reported dead on the 5th day of neonatal intensive care unit admission. Physiological jaundice and transient respiratory distress were recorded in two term infants. One term infant was antenatally diagnosed with renal pelviectasis, but the findings resolved postnatally without requiring intervention.

Conclusion

The data indicate that favipiravir is not likely to be a major teratogen. Yet, it is not possible to draw a definite conclusion due to methodological limitations. Favipiravir exposures during pregnancy should be followed up closely and the outcomes should be reported consistently. (Author)

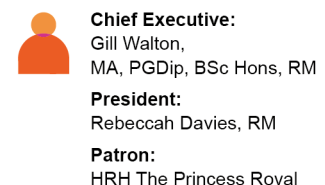
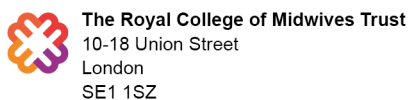
2022-05554

“Other risks don't stop”: adapting a youth sexual and reproductive health intervention in Zimbabwe during

COVID-19. Mackworth-Young CRS, Mavodza C, Nyamwanza R, et al (2022), Sexual and Reproductive Health Matters vol 30, no 1, 2022, 2029338

COVID-19 threatens hard-won gains in sexual and reproductive health (SRH) through compromising the ability of services to meet needs. Youth are particularly threatened due to existing barriers to their access to services. CHIEDZA is a community-based integrated SRH intervention for youth being trialled in Zimbabwe. CHIEDZA closed in March

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2020, in response to national lockdown, and reopened in May 2020, categorised as an essential service. We aimed to understand the impact of CHIEDZA's closure and its reopening, with adaptations to reduce COVID-19 transmission, on provider and youth experiences. Qualitative methods included interviews with service providers (n = 22) and youth (n = 26), and observations of CHIEDZA sites (n = 10) and intervention team meetings (n = 7). Analysis was iterative and inductive. The sudden closure of CHIEDZA impeded youth access to SRH services. The reopening of CHIEDZA was welcomed, but the necessary adaptations impacted the intervention and engagement with it. Adaptations restricted time with healthcare providers, heightening the tension between numbers of youths accessing the service and quality of service provision. The removal of social activities, which had particularly appealed to young men, impacted youth engagement and access to services, particularly for males. This paper demonstrates how a community-based youth-centred SRH intervention has been affected by and adapted to COVID-19. We demonstrate how critical ongoing service provision is, but how adaptations negatively impact service provision and youth engagement. The impact of adaptations additionally emphasises how time with non-judgemental providers, social activities, and integrated services are core components of youth-friendly services, not added extras. (Author)

Full URL: <https://doi.org/10.1080/26410397.2022.2029338>

2022-05290

The role of laboratory parameters in predicting severity of COVID-19 disease in pregnant patients. Sahin ON, Aktoz F, Bagci H, et al (2022), Journal of Obstetrics and Gynaecology vol 42, no 6, 2022, pp 1917-1921

We aimed to examine the relationship between laboratory markers and the severity of the disease in pregnant women diagnosed with coronavirus disease 2019 (COVID-19). Clinical records were retrospectively reviewed for 112 pregnant women. Patients diagnosed with COVID-19 were divided into two groups as mild/moderate and severe. The relationship between predicting the severity of the disease and laboratory parameters was investigated. Neutrophil lymphocyte ratio, C-reactive protein (CRP), ferritin and aspartate aminotransferase levels were significantly higher in severe COVID-19 cases than mild/moderate cases ($p = .048$, $p = .003$, $p = .015$ and $p = .035$, respectively). CRP was found to be the most useful marker in terms of diagnostic performance with a cut off value of 10.8 (sensitivity 80%, specificity 56.1%, NPV 88.5% and PPV 40.0%). The best diagnostic performance was obtained using CRP and ferritin combined with cut-offs of 10.8 mg/L for CRP and 26.5 $\mu\text{g/L}$ for ferritin. Combined CRP and ferritin showed sensitivity, specificity, negative predictive value and positive predictive value of 94.7%, 52.8%, 96.6% and 41.9%, respectively, in predicting severe COVID-19. The combination of CRP and ferritin parameters may be useful in estimating the severity of the disease in pregnant patients who were initially diagnosed with COVID-19.


Impact Statement

What is already known about this subject? Coronavirus disease 2019 (COVID-19) can rapidly develop into acute respiratory distress syndrome (ARDS) and result in serious complications in some pregnant patients. Therefore, timely diagnosis of patients is crucial. Most previous reports of COVID-19 laboratory results are based on data from the general population and limited information is available regarding pregnancy status. Although laboratory medicine makes an important contribution to clinical decision making in many infectious diseases, including COVID-19, studies to predict the severity of the disease with laboratory markers are limited and the results are contradictory.


What do the results of this study add? Our study shows that C-reactive protein (CRP), neutrophil lymphocyte ratio (NLR), ferritin and aspartate aminotransferase (AST) are associated with severe disease in pregnant women diagnosed with COVID-19. In addition, the use of combined CRP and ferritin appears to have higher sensitivity and negative predictive value than using other tests alone. Furthermore, this study shows that coagulation markers are not useful in predicting disease severity in pregnancy.

What are the implications of these findings for clinical practice and/or further research? Predicting the severity of COVID-19 disease in pregnancy can prevent unnecessary hospitalisations and allow the implementation of the necessary clinical approach. Further studies can focus on the clinical usefulness of these parameters in predicting severe COVID-19 in pregnancy. (Author)

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2022-05287

Comparison of pregnancy outcome during pandemic of COVID-19 and non-pandemic situations, Yazd, Iran, in 2019–2020. Saberi H, Ghorashi Z, Loripoor M (2022), Journal of Obstetrics and Gynaecology vol 42, no 6, 2022, pp 1937-1943

This study aimed to compare the pregnancy outcomes during pandemic and non-pandemic COVID-19 in women referred to health service centres in Yazd. This descriptive study was performed based on the information obtained from all pregnant women referred to comprehensive health service centres in Yazd city using census method, between March 21 2019 and December 21 2019 and between March 20 2020 and December 20 2020. The pregnant mothers' information, including their pregnancy outcome, and maternal and neonatal complications, was extracted from the electronic health information system of Yazd city. The obtained data were analysed by Chi-Square test. No significant difference was found between non-pandemic and pandemic COVID-19 situations in most variables. As well, maternal and neonatal death were equally observed in both non-pandemic and pandemic COVID-19 situations. Wanted pregnancy, post term birth, multiple pregnancy and caesarean section rates were found to be higher in pandemic than non-pandemic COVID-19 ($p < .001$). Reported abortion, screening for foetal aneuploidy in the first and second trimesters as well as the number of episodes of prenatal care during COVID-19 pandemic were significantly lower than those of non-pandemic period ($p < .001$). The outcome of pregnancy during the pandemic was not significantly different from that of non-pandemic situation.

Impact Statement

What is already known on this subject? Studies already showed COVID-19 in pregnancy alter the maternal and neonatal outcomes in different degrees compared with pregnant individuals without COVID-19. However, it is not clear that pregnancy outcome dose alter during pandemic of COVID-19 compared to non-pandemic situations in general population?

What do the results of this study add? The results of this study revealed that the outcome of pregnancy during pandemic was not significantly different from that of non-pandemic situation.

What are the implications of these findings for clinical practice and/or further research? According to results of this study, we can ensure pregnant women in the situation of pandemic COVID-19 that they are not in greater risk. We suggest future research should be done for comparison of pregnancy outcome in the situation of delta variant pandemic with non-pandemic COVID-19. (Author)

2022-05270

Impact of COVID-19 disease and vaccination on maternal/fetal inflammatory response, placental pathology, and perinatal outcomes. Boelig RC, Aghai Z, Chauhdury S, et al (2022), American Journal of Obstetrics & Gynecology (AJOG) vol 227, no 4, October 2022, pp 652-656

Research letter aiming to evaluate the impact of COVID-19 disease and vaccination on the maternal-fetal unit through the inflammatory cytokine panel at delivery, placental pathology and perinatal outcomes. Results show that COVID-19 disease, but not vaccination, is associated with inflammatory cytokines, placental vascular pathology and preterm delivery. (LDO)


Full URL: <https://doi.org/10.1016/j.ajog.2022.05.049>

2022-05219


Outcomes of Pregnant Patients Treated with REGEN-COV during the COVID-19 Pandemic. Levey NH, Forrest AD, Spielman DW, et al (2022), American Journal of Obstetrics & Gynecology MFM vol 4, no 5, September 2022, 100673

Background: Pregnant patients with SARS-CoV-2 infection are at increased risk for severe disease including hospitalization, intensive care admission, ventilatory support and death. Although pregnant patients were excluded from investigational trials for pharmacologic treatments for COVID-19 illness, the National Institutes of Health Treatment Guidelines state efficacious treatments should not be withheld from pregnant patients. Infusion of

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Casirivimab and Imdevimab (REGEN-COV), a monoclonal antibody therapy, was shown to reduce the risk of coronavirus disease 2019 (COVID-19) related hospitalization or death from any cause and resolved symptoms and reduced severe acute respiratory syndrome coronavirus 2 viral load (SARS-CoV-2) more rapidly than placebo. In July of 2021 the Food and Drug Administration released an Emergency Use Authorization for REGEN-COV. Although pregnant persons were not included in the original trials, given the higher risk of morbidity and mortality in the pregnant population, our institution offered REGEN-COV to our pregnant patients beginning in August of 2021. Side effects after REGEN-COV administration are rare and thought to be secondary to COVID infection rather than REGEN-COV.

Objective: The objective of this study was to track the safety and clinical outcomes of unvaccinated pregnant patients who received REGEN-COV and compare these outcomes to a contemporary cohort of patients who tested positive for SARS-CoV-2 and were eligible but did not receive REGEN-COV. Our hypothesis was that REGEN-COV administration during pregnancy is safe, and that pregnant persons who received REGEN-COV would experience less severe COVID-19 respiratory illness by decreasing length of hospital stay, decreasing ICU admission, and decreasing the need for oxygen and other COVID-19 therapeutics.

Study Design: This is a retrospective cohort study of pregnant patients who either tested positive for SARS-CoV-2 or had a known exposure to a COVID-19 positive person, and therefore have been eligible for REGEN-COV at our institution. Within this cohort, we compared those who received REGEN-COV to those who did not receive REGEN-COV between March 2021 and October 2021 at Grady Memorial Hospital in Atlanta, Georgia. The main outcomes studied were perinatal outcomes, safety data and the clinical course of SARS-CoV-2 infection.

Results: From March 2021 to October 2021, 86 pregnant people tested positive for SARS-CoV-2 via real time-PCR or had a confirmed exposure. Among this group, 36 received REGEN-COV and 50 did not. There were no instances of infusion rate adjustment or discontinuation, anaphylaxis, or death among those individuals who received REGEN-COV. One individual experienced worsening shortness of breath over 24 hours after administration which was classified as an infusion-related reaction. There were not any significant differences in perinatal outcomes, length of hospitalization, rates of ICU admission, additional pharmacologic treatment for COVID-19, or oxygen requirement between the two groups.

Conclusions: Administration of REGEN-COV is safe in pregnancy and did not increase adverse maternal, neonatal, or obstetrical outcomes. There was not a statistically significant difference in COVID-19 related outcomes in our high-risk population. Given the likely safety of this drug in pregnancy and its known benefits in the non-pregnant population, we advocate for continued use of this therapy and encourage the development of future studies to enroll a larger and more diverse cohort to explore its efficacy further. (Author)

2022-05199

Maternity care during COVID-19: a qualitative evidence synthesis of women's and maternity care providers' views and experiences. Flaherty SJ, Delaney H, Matvienko-Sikar K, et al (2022), BMC Pregnancy and Childbirth vol 22, no 438, 26 May 2022

Background

As COVID-19 continued to impact society and health, maternity care, as with many other healthcare sectors across the globe, experienced tumultuous changes. These changes have the potential to considerably impact on the experience of maternity care. To gain insight and understanding of the experience of maternity care during COVID-19, from the perspectives of women and maternity care providers, we undertook a qualitative evidence synthesis (QES).

Methods

The population of interest for the QES were pregnant and postpartum women, and maternity care providers, who provided qualitative data on their experiences of maternity care during COVID-19. The electronic databases of MEDLINE, CINAHL, EMBASE, PsycINFO and the Cochrane COVID study register were systematically searched from 01 Jan 2020 to 13 June 2021. The methodological quality of the included studies was appraised using a modified version of the quality assessment tool, based on 12-criteria, designed by the Evidence for Policy and Practice Information coordinating Centre (EPPI-Centre). Data were extracted by two reviewers independently and synthesised using the Thomas and Harden framework. Confidence in the findings was assessed using the Grading of Recommendations Assessment, Development and Evaluation-Confidence in the Evidence from Reviews of Qualitative research

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(GRADE-CERQual).

Results

Fifty records relating to 48 studies, involving 9,348 women and 2,538 maternity care providers, were included in the QES. The methodological quality of the studies varied from four studies meeting all 12 quality criteria to two studies meeting one quality criterion only. The synthesis revealed eight prominent themes. Five of these reflected women's experiences: 1) Altered maternity care (women), 2) COVID-related restrictions, 3) Infection prevention and risk, 4) 'the lived reality' – navigating support systems, and 5) Interactions with maternity services. Three themes reflected maternity care providers' experiences: 6) Altered maternity care (providers), 7) Professional and personal impact, and 8) Broader structural impact. Confidence in the findings was high or moderate.

Conclusion

Although some positive experiences were identified, overall, this QES reveals that maternity care during COVID-19 was negatively experienced by both women and maternity care providers. The pandemic and associated changes evoked an array of emotive states for both populations, many of which have the potential to impact on future health and wellbeing. Resource and care planning to mitigate medium- and longer-term adverse sequelae are required.

PROSPERO registration

CRD42021232684. (Author)

Full URL: <https://doi.org/10.1186/s12884-022-04724-w>

2022-05170

Effects of the SARS-CoV-2 pandemic on perinatal activity in Yorkshire and the Humber region during 2020: an interrupted time series analysis. Morgan AS, Bradford CM, Farrow H, et al (2022), Archives of Disease in Childhood: Fetal and Neonatal Edition vol 107, no 6, November 2022, pp 624-629

Objective To assess the impact of public health measures taken during the COVID-19 pandemic on perinatal health indicators.

Design Interrupted time series analysis comparing periods of the pandemic with the previous 5 years.

Setting Yorkshire and the Humber region, England (2015–2020).


Main outcome measures Relative risk (RR) of stillbirth, extreme preterm (EPT, <27 weeks' gestational age) delivery, hypoxic ischaemic encephalopathy (HIE) and meconium aspiration syndrome (MAS), antenatal transfer for threatened EPT delivery and postnatal transfer for EPT birth, HIE or MAS.

Results Stillbirths fell from 3.7/1000 deliveries prepandemic to 2.9/1000 afterwards; EPT births decreased from 2.5/1000 to 1.8/1000 live births. Following adjustment, during the first lockdown there were decreased antenatal transfers (RR 0.74, 95% CI 0.57 to 0.94) with non-statistically significant increased stillbirth (RR 1.08, 95% CI 0.78 to 1.51) and decreased EPT admissions (RR 0.88, 95% CI 0.60 to 1.29). Over the entire pandemic period, antenatal transfer (RR 0.64, 95% CI 0.55 to 0.76) and EPT birth (RR 0.73, 95% CI 0.56 to 0.94) decreased; stillbirths showed non-statistically significant increases overall (RR 1.21, 95% CI 0.98 to 1.49) but with increasing trend through the pandemic (RR 1.11, 95% CI 1.00 to 1.22). No changes were seen for HIE, MAS, postnatal transfers or in subgroup analyses by ethnicity.


Conclusions Lower rates of antenatal transfer and extreme preterm birth were identified, alongside an apparent increase in stillbirth over time. The findings provide evidence that effects on perinatal activity related to the pandemic changed over time. (Author)

Full URL: <http://dx.doi.org/10.1136/archdischild-2021-323466>

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2022-05163

Preterm birth rates were slightly lower in Denmark during the first year of the COVID-19 pandemic compared with the previous 4 years. Hansen BM, Cueto H, Petersen JP, et al (2022), *Acta Paediatrica* vol 111, no 9, September 2022, pp 1695-1700

Aim

Our aim was to investigate the rates of preterm births, live births and stillbirths in Denmark during the first year of the COVID-19 pandemic.

Methods

This was a national, cross-sectional registry-based study that used the Danish Newborn Quality database, which covers all births in Denmark. The proportions of preterm births were compared between the COVID-19 pandemic period of 1 March 2020 to 28 February 2021 and the preceding 4-year pre-pandemic period.

Results

We studied 60 323 and 244 481 newborn infants from the pandemic and pre-pandemic periods, respectively. The proportion of preterm live births and stillbirths declined slightly, from 6.29% during the pre-pandemic period to 6.02% during the pandemic period. This corresponded to a relative risk (RR) of 0.96, with a 95% confidence interval (CI) of 0.93–0.99 during the pandemic. The RRs for extremely preterm, very preterm and moderately preterm infants were 0.88 (95% CI 0.76–1.02), 0.91 (95% CI 0.82–1.02) and 0.97 (95% CI 0.93–1.01), respectively.

Conclusion

This comparative study showed a small reduction in just over 4%, from 6.29 to 6.02% in the proportion of all preterm births during the pandemic period, compared with the previous four pandemic-free years. There were no differences between subcategories of preterm births. (Author)

Full URL: <https://doi.org/10.1111/apa.16401>

2022-05098

Reduction in preterm birth rates during and after the COVID-19 lockdown in Queensland Australia. Jasper B, Stillerova T, Anstey C, et al (2022), *Australian and New Zealand Journal of Obstetrics and Gynaecology (ANZJOG)* vol 62, no 6, December 2022, pp 851-858

Background

Preventative strategies for preterm birth are lacking. Recent evidence proposed COVID-19 lockdowns may have contributed to changes in preterm birth.

Aims

To determine the prevalence of preterm birth and birth outcomes during and after the COVID-19 lockdown at the Sunshine Coast University Hospital and the overall state of Queensland, Australia.

Methods

Retrospective cohort analysis of all births in Queensland including the Sunshine Coast University Hospital, during two epochs, April 1–May 31, 2020 (lockdown) and June 1–July 31, 2020 (post-lockdown), compared to antecedent calendar-matched periods in 2018–2019. Prevalence of preterm birth, stillbirth, and late terminations were examined.

Results

There were 64 989 births in Queensland from April to July 2018–2020. At the Sunshine Coast University Hospital, there was a significantly higher chance of birth at term during both lockdown (odds ratio (OR) 1.81, 95% CI 1.17, 2.79; $P = 0.007$) and post-lockdown (OR 2.01, 95% CI 1.27, 3.18; $P = 0.003$). At the same centre, prevalence of preterm birth was 5.5% (30/547) during lockdown, compared to 9.1% (100/1095) in previous years, a 40.0% relative reduction ($P = 0.016$). At this centre during lockdown, emergency caesareans concurrently decreased ($P < 0.01$) and instrumental vaginal births increased ($P < 0.01$). In Queensland overall, there was a nonsignificant decrease in the prevalence of preterm birth during lockdown.

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Conclusions

There is a link between lockdown and a reduction in the prevalence of preterm birth on the Sunshine Coast. The cause is speculative at present, although increased influenza vaccination rates, decreased transmission of infections, and improved air quality may have been favourable in reducing preterm birth. Further research is needed to determine a causal link. (Author)

Full URL: <https://doi.org/10.1111/ajo.13538>

2022-04978

Navigating uncertainty alone: A grounded theory analysis of women's psycho-social experiences of pregnancy and childbirth during the COVID-19 pandemic in London. Montgomery E, De Backer K, Easter A, et al (2023), *Women and Birth: Journal of the Australian College of Midwives* vol 36, no 1, February 2023, pp e106-e117

Problem

Maternity care underwent substantial reconfiguration in the United Kingdom during the COVID-19 pandemic.

Background

COVID-19 posed an unprecedented public health crisis, risking population health and causing a significant health system shock.

Aim

To explore the psycho-social experiences of women who received maternity care and gave birth in South London during the first 'lockdown'.

Methods

We recruited women (N = 23) to semi-structured interviews, conducted virtually. Data were recorded, transcribed, and analysed by hand. A Classical Grounded Theory Analysis was followed including line-by-line coding, focused coding, development of super-categories followed by themes, and finally the generation of a theory.

Findings

Iterative and inductive analysis generated six emergent themes, sorted into three dyadic pairs: 1 & 2: Lack of relational care vs. Good practice persisting during the pandemic; 3 & 4: Denying the embodied experience of pregnancy and birth vs. Trying to keep everyone safe; and 5 & 6: Removed from support network vs. Importance of being at home as a family. Together, these themes interact to form the theory: 'Navigating uncertainty alone'.

Discussion

Women's pregnancy and childbirth journeys during the pandemic were reported as having positive and negative experiences which would counteract one-another. Lack of relational care, denial of embodied experiences, and removal from support networks were counterbalanced by good practice which persisted, understanding staff were trying to keep everyone safe, and renewed importance in the family unit.

Conclusion

Pregnancy can be an uncertain time for women. This was compounded by having to navigate their maternity journey alone during the COVID-19 pandemic. (Author)

Full URL: <https://doi.org/10.1016/j.wombi.2022.05.002>

2022-04923

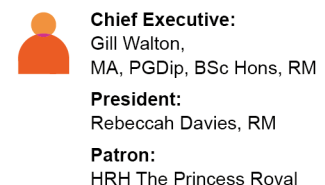
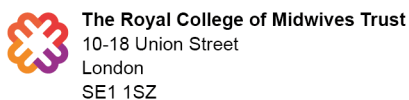
Changes in women's health service seeking behaviours and the impact of telehealth during COVID-19: Insights from the 1800MyOptions service. Subasinghe AK, Mogharbel C, Hill D, et al (2021), *Australian and New Zealand Journal of Obstetrics and Gynaecology (ANZJOG)* vol 61, no 5, October 2021, pp e26-e27

Letter to the editor presenting an audit of the 1800MyOptions service operated by Women's Health Victoria about contraception, pregnancy options and sexual health. The audit revealed an increased demand for pregnancy options counselling and an increased proportion of callers at a later gestation. (LDO)

Full URL: <https://doi.org/10.1111/ajo.13409>

2022-04921

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Pregnancy and the risk of severe coronavirus disease 2019 infection: methodological challenges and research

recommendations. Savitz D, Bengtson AM, Hardy E, et al (2022), *BJOG: An International Journal of Obstetrics and Gynaecology* vol 129, no 2, January 2022, pp 192-195

Commentary addressing the methodological challenges encountered in examining the impact of pregnancy on severity of COVID-19 infection. Highlights factors which increase the risk of bias including confounding, increased surveillance and enhanced clinical response to illness. (LDO)

Full URL: <https://doi.org/10.1111/1471-0528.16935>

2022-04850

Neighborhood Characteristics and Racial Disparities in Severe Acute Respiratory Syndrome Coronavirus 2

(SARS-CoV-2) Seropositivity in Pregnancy. Burriss HH, Mullin AM, Dhudasia MB, et al (2022), *Obstetrics & Gynecology* vol 139, no 6, June 2022, pp 1018-1026

OBJECTIVE:

To quantify the extent to which neighborhood characteristics contribute to racial and ethnic disparities in severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) seropositivity in pregnancy.

METHODS:

This cohort study included pregnant patients who presented for childbirth at two hospitals in Philadelphia, Pennsylvania from April 13 to December 31, 2020. Seropositivity for SARS-CoV-2 was determined by measuring immunoglobulin G and immunoglobulin M antibodies by enzyme-linked immunosorbent assay in discarded maternal serum samples obtained for clinical purposes. Race and ethnicity were self-reported and abstracted from medical records. Patients' residential addresses were geocoded to obtain three Census tract variables: community deprivation, racial segregation (Index of Concentration at the Extremes), and crowding. Multivariable mixed effects logistic regression models and causal mediation analyses were used to quantify the extent to which neighborhood variables may explain racial and ethnic disparities in seropositivity.

RESULTS:

Among 5,991 pregnant patients, 562 (9.4%) were seropositive for SARS-CoV-2. Higher seropositivity rates were observed among Hispanic (19.3%, 104/538) and Black (14.0%, 373/2,658) patients, compared with Asian (3.2%, 13/406) patients, White (2.7%, 57/2,133) patients, and patients of another race or ethnicity (5.9%, 15/256) ($P < .001$). In adjusted models, per SD increase, deprivation (adjusted odds ratio [aOR] 1.16, 95% CI 1.02–1.32) and crowding (aOR 1.15, 95% CI 1.05–1.26) were associated with seropositivity, but segregation was not (aOR 0.90, 95% CI 0.78–1.04). Mediation analyses revealed that crowded housing may explain 6.7% (95% CI 2.0–14.7%) of the Hispanic–White disparity and that neighborhood deprivation may explain 10.2% (95% CI 0.5–21.1%) of the Black–White disparity.

CONCLUSION:

Neighborhood deprivation and crowding were associated with SARS-CoV-2 seropositivity in pregnancy in the prevaccination era and may partially explain high rates of SARS-CoV-2 seropositivity among Black and Hispanic patients. Investing in structural neighborhood improvements may reduce inequities in viral transmission. (Author)

2022-04848

Recruitment of Pregnant Women to Randomised Trials of COVID 19 Treatments, and Pharmaceutical Treatments


Received Outside such Trials: A Research Article. Green O, Young EM, Oberman J, et al (2022), *European Journal of Obstetrics & Gynecology and Reproductive Biology* vol 275, August 2022, pp 12-16

Objectives


To document how many pregnant women with COVID-19 reported in the literature had participated in randomised trials, what treatments they received outside such trials and compare the latter with evidence-based treatment recommendations.

Study Design: a systematic review of observational studies.

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Methods

Two clinical trial registries were searched to identify COVID-19 trials open to pregnant women. Studies were then extracted from a regularly updated list of scientific case reports and case series of confirmed or suspected maternal COVID-19 in pregnancy to identify the number of women enrolled into a trial and the pharmaceutical treatments they received outside such trials.

Results

156 studies (case reports, case series and registries) reporting 43,185 pregnant women with COVID-19, after de-duplication. Of these 2,671 (6.2%) were potentially eligible for a randomised trial but only seven women (0.26%) were reported to have enrolled.

For 2,839 women the papers included information on treatment received, 1515/2829 (54%) women had received ≥ 1 treatment and in total a COVID-19 pharmaceutical treatment was administered 1,296 times outside of a trial. In 566 (44%) cases the treatments administered to the pregnant women were not recommended by the National Institutes of Health (NIH) at the time of administration.

Of 179 case reports of women with COVID 19 in pregnancy, 109/179 women received ≥ 1 COVID-19 pharmaceutical treatment and in total COVID-19 experimental pharmaceutical treatments were administered 274 times.

Conclusion

During the early phase of the COVID-19 pandemic, pregnant women excluded from randomised trials did not avoid unproven or ineffective treatments. (Author)

Full URL: <https://doi.org/10.1016/j.ejogrb.2022.05.009>

2022-04847

The impact of mitigation measures on perinatal outcomes during the first nine months of the COVID-19 pandemic: A systematic review with meta-analysis. Hawco S, Rolnik DL, Woolner A, et al (2022),

European Journal of Obstetrics & Gynecology and Reproductive Biology vol 274, July 2022, pp 117-127

Worldwide reports have produced conflicting data on perinatal outcomes during the COVID-19 pandemic. This systematic review and meta-analysis addressed the effect of mitigation measures against COVID-19 on preterm birth, stillbirth, low birth weight, and NICU admission during the first nine months of the pandemic.

A search was performed using MEDLINE, Embase and SCOPUS for manuscripts published up until 24th May 2021.

Studies that reported perinatal outcomes (preterm birth, stillbirth, low birth weight, NICU admission) during the COVID-19 pandemic with a pre-pandemic control period were included. Risk of bias assessment was performed using ROBINS-I tool. RevMan5 was used to perform meta-analysis with random-effects models. A score of the stringency of mitigation measures was calculated from the Oxford COVID-19 Government Response Tracker.

Thirty-eight studies of moderate to serious risk of bias were included, with varied methodology, analysis and regional mitigation measures, using stringency index scores. There was no overall effect on preterm birth at less than 37 weeks (OR 0.96, 95% CI 0.92–1.00). However, there was a reduction in preterm birth at less than 37 weeks (OR 0.89, 95% CI 0.81–0.98) and 34 weeks (OR 0.56, 95% CI 0.37–0.83) for iatrogenic births and in singleton pregnancies. There was also a significant reduction in preterm births at less than 34 weeks in studies with above median stringency index scores (OR 0.71, 95% CI 0.58–0.88). There was no effect on risk of stillbirth (OR 1.04, 95% CI 0.90–1.19) or birth weight. NICU admission rates were significantly reduced in studies with above median stringency index scores (OR 0.87, 95% CI 0.78–0.97). The reduction in preterm births in regions with high mitigation measures against SARS-CoV-2 infection is likely driven by a reduction in iatrogenic births. Variability in study design and cohort characteristics need to be considered for future studies to allow further investigation of population level health measures of perinatal outcomes. (Author)

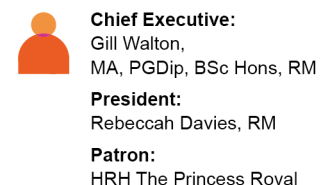
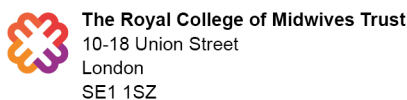
Full URL: <https://doi.org/10.1016/j.ejogrb.2022.05.007>

2022-04806

Analysis of online antenatal education class use via a mobile terminal app during the COVID-19 pandemic. Chen X-W, Jiang L-Y, Chen Y, et al (2022), BMC Pregnancy and Childbirth vol 22, no 412, 16 May 2022

Objective

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To understand the use of online antenatal education classes accessed via the Mother and Child Health Handbook app during the COVID-19 pandemic in order to provide a basis and suggestions for optimizing Internet education during pregnancy under public health emergencies.

Methods

We compared and analyzed the use of online antenatal education classes via the Mother and Child Health Handbook app in Hangzhou in 2019 and 2020 (during the COVID-19 pandemic).

Results

Between January 1, 2019, and December 31, 2020, a total of 229,794 pregnant women created files and registered for the app, including 124,273 women in 2019 and 105,521 women in 2020. More pregnant women participated in online antenatal education learning ($n = 36,379/34.5\%$ vs. $29,226/23.5\%$, $p = 0.000$) in 2020 than in 2019. The proportion of pregnant women in the 18–34-year-old group who participated in online learning was higher than that in the advanced age group, and the difference was statistically significant (2019: 24.3% vs. 18.8%, $p = 0.000$) (2020: 35.7% vs. 27.4%, $p = 0.000$). More pregnant women accessed online antenatal education during early pregnancy ($n = 13,463/37.0\%$ vs. $9088/31.1\%$, $p = 0.000$) in 2020 than in 2019. Similar percentages of pregnant women participated in online antenatal education during mid-pregnancy ($n = 15,426/52.8\%$ vs. $19,269/53.0\%$, $p = 0.639$) in 2019 and 2020. Fewer pregnant women accessed online antenatal education during late pregnancy ($n = 10,246/28.2\%$ vs. $9476/32.4\%$, $p = 0.000$) in 2020 than in 2019. Fewer pregnant women choose to take 'Puerperal Health' courses in 2020 than in 2019 (early pregnancy: 36.20% vs. 42.79%, $p = 0.000$; mid-pregnancy: 41.65% vs. 48.19%, $p = 0.000$; late pregnancy: 55.31% vs. 58.41%, $p = 0.000$). Fewer pregnant women choose to take 'Psychological Adjustment' courses in 2020 than in 2019 (early pregnancy: 21.59% vs. 29.60%, $p = 0.000$; mid-pregnancy: 26.20% vs. 40.50%, $p = 0.000$; late pregnancy: 12.79% vs. 42.53%, $p = 0.000$). More pregnant women choose to study 'Nutrition and Exercise' in 2020 than in 2019 (early pregnancy: 44.48% vs. 25.95%, $p = 0.000$; mid-pregnancy: 47.77% vs. 40.75%, $p = 0.000$; late pregnancy: 55.94% vs. 42.99%, $p = 0.000$). "Pregnancy Care and Fetal Development" was the most selected course by pregnant women in early pregnancy (2019: 67.50%; 2020: 71.39%) and middle pregnancy (2019: 67.01%; 2020: 82.05%), and the proportion in 2020 was higher than it was in 2019. "Baby care" was the most selected course by pregnant women in late pregnancy, and the proportion in 2020 was higher than it was in 2019 (78.31% vs. 72.85%).

Conclusion

During the COVID-19 pandemic, online antenatal education was well-used by pregnant women. More women participated in the online antenatal education modules during the COVID-19 pandemic than during 2019. The proportion of choosing different courses for pregnant women before and after the COVID-19 epidemic varied, and the learning course needs of pregnant women in different trimesters were different. (Author)

Full URL: <https://doi.org/10.1186/s12884-022-04745-5>

2022-04766

Shared risk factors for COVID-19 and preeclampsia in the first trimester: An observational study. Serrano B, Mendoza M, Garcia-Aguilar P, et al (2022), *Acta Obstetrica et Gynecologica Scandinavica* vol 101, no 7, July 2022, pp 803-808

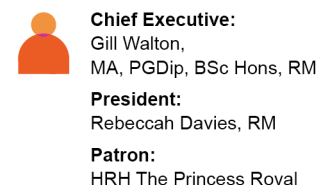
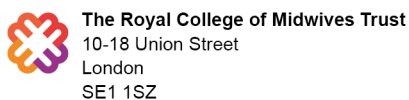
Introduction

The association between preeclampsia and coronavirus disease 2019 (COVID-19) is under study. Previous publications have hypothesized the existence of shared risk factors for both conditions or a deficient trophoblastic invasion as possible explanations for this association. The primary aim of this study was to examine baseline risk factors measured in the first-trimester combined screening for preeclampsia in pregnant women with COVID-19 compared with the general population. A secondary aim of this study was to compare risk factors among patients with mild and severe COVID-19.

Material and Methods

This was an observational retrospective study conducted at Vall d'Hebron Hospital Campus (Catalonia, Spain). Study patients were 231 pregnant women undergoing the first-trimester screening for preeclampsia and positive for severe

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acute respiratory syndrome coronavirus 2 between February 2020 and September 2021. The reference cohort were 13 033 women of the general population from six centers across Catalonia from May 2019 to June 2021. Based on the need for hospitalization, patients were classified in two groups: mild and severe COVID-19. First-trimester screening for preeclampsia included maternal history, mean arterial blood pressure, mean uterine artery pulsatility index (UtAPI), placental growth factor (PIGF), and pregnancy-associated plasma protein-A (PAPP-A).

Results

The proportion of cases at high risk for preeclampsia was significantly higher among the COVID-19 group compared with the general population (19.0% and 13.2%, respectively; $p = 0.012$). When analyzing risk factors for preeclampsia individually, women with COVID-19 had higher median body mass index (25.2 vs. 24.5, $p = 0.041$), higher UtAPI multiple of the median (MoM) (1.08 vs. 1.00, $p < 0.001$), higher incidence of chronic hypertension (2.8% vs. 0.9%, $p = 0.015$), and there were fewer smokers (5.7% vs. 11.6%, $p = 0.007$). The MoMs of PIGF and PAPP-A did not differ significantly between both groups (0.96 vs. 0.97, $p = 0.760$ and 1.00 vs. 1.01, $p = 0.432$; respectively).

Conclusions

In patients with COVID-19, there was a higher proportion of women at high risk for preeclampsia at the first-trimester screening than in the general population, mainly because of maternal risk factors, rather than placental signs of a deficient trophoblastic invasion. (Author)

Full URL: <https://doi.org/10.1111/aogs.14371>

2022-04760

Gestational diabetes mellitus and COVID-19: results from the CRONOS study. Kleinwechter HJ, Weber KS, Mingers N, et al (2022), American Journal of Obstetrics & Gynecology (AJOG) vol 227, no 4, October 2022, pp 631.e1-631.e19

BACKGROUND

Gestational diabetes mellitus is one of the most frequent pregnancy complications with a global prevalence of 13.4% in 2021. Pregnant women with COVID-19 and gestational diabetes mellitus are 3.3 times more likely to be admitted to an intensive care unit compared to women without gestational diabetes mellitus. Data on the association of gestational diabetes mellitus with maternal and neonatal pregnancy outcomes in SARS-CoV-2-infected pregnant women are lacking.

OBJECTIVE

The aim of our study was to investigate whether gestational diabetes mellitus is an independent risk factor for adverse maternal and fetal/neonatal outcomes in pregnant women with COVID-19.

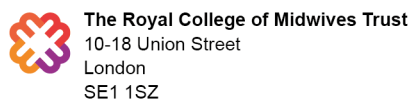
STUDY DESIGN

CRONOS (COVID-19 Obstetric and Neonatal Outcome Study) is a registry-based multicentric prospective observational study from Germany and Linz/Austria. Pregnant women with clinically confirmed COVID-19 were enrolled between April 3, 2020 and August 24, 2021, at any stage of pregnancy. Obstetricians and neonatologists of 115 hospitals actively provided data to CRONOS. For collecting data a cloud based electronic data platform was developed. Women and neonates were followed until hospital discharge. Information on demographic characteristics, comorbidities, medical history, COVID-19 associated symptoms and treatments, pregnancy and birth outcomes were entered by the local sites. Information on the periconceptional body mass index was collected. A primary combined maternal endpoint was defined as (1) admission to an intensive care unit (including maternal mortality), and/or (2) viral pneumonia, and/or (3) oxygen supplementation. A primary combined fetal/neonatal endpoint was defined as (1) stillbirth >24+0 weeks of pregnancy, and/or (2) neonatal death <7 days postnatal, and/or (3) transfer to a neonatal intensive care unit. Multivariable logistic regression analysis was performed to evaluate the modulating impact of gestational diabetes mellitus on the defined endpoints.

RESULTS

Of the 1,490 women with COVID-19 (mean age 31.0 ± 5.2 years, 40.7% nulliparous), 9.4% ($n=140$) were diagnosed with gestational diabetes mellitus, of these, 42.9% were treated with insulin. Overall, gestational diabetes mellitus was not associated with an adverse maternal outcome (odds Ratio: 1.50; 95% confidence interval: 0.88; 2.57). In overweight/obese women, however, gestational diabetes mellitus was independently associated with the primary

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maternal outcome (adjusted odds ratio 2.69; 95% confidence interval: 1.43; 5.07). Overweight/obese women with gestational diabetes mellitus requiring insulin treatment were found to have an increased risk for a severe course of COVID-19 (adjusted odds ratio 3.05; 95% confidence interval: 1.38; 6.73). Adverse maternal outcome was more common when COVID-19 was diagnosed with or short after gestational diabetes mellitus diagnosis compared to COVID-19 diagnosis prior to gestational diabetes mellitus diagnosis (19.6% vs. 5.6%, $p < 0.05$). Maternal gestational diabetes mellitus and maternal preconceptional body mass index > 25 kg/m² increased the risk of adverse fetal/neonatal outcome (adjusted odds ratio 1.83; 95% confidence interval: 1.05; 3.18). Furthermore, overweight/obesity (irrespective of gestational diabetes mellitus status) were influential factors for the maternal (adjusted odds ratio 1.87; 95% confidence interval: 1.26; 2.75) and neonatal primary endpoints (1.81; 95% confidence interval: 1.32; 2.48) in comparison to women with underweight or normal weight.

CONCLUSION

Gestational diabetes mellitus, combined with periconceptional overweight/obesity, is independently associated with severe maternal course of COVID-19, especially when the mothers require insulin and COVID-19 is diagnosed with or after gestational diabetes mellitus diagnosis. These combined factors exhibited a moderate effect on neonatal outcomes. Women with gestational diabetes mellitus and body mass index > 25 kg/m² are a particularly vulnerable group in the case of COVID-19. (Author)

Full URL: <https://doi.org/10.1016/j.ajog.2022.05.027>

2022-04723

Histopathological features in advanced abdominal pregnancies co-infected with SARS-CoV-2 and HIV-1 infections: A case evaluation. Ramphal S, Govender N, Singh S, et al (2022), European Journal of Obstetrics & Gynecology and Reproductive Biology: X vol 15, August 2022, 100153

Objectives

This study aims to provide a semi-qualitative histopathological report of the dual SARS-CoV-2 and HIV infected placentae in the third trimester of Advanced Abdominal Pregnancy (AAP).

Study design

Four AAP placentae in the third trimester of pregnancy (two positive for HIV-1 and two positives for SARS-CoV-2) were histologically examined.

Results

The SARS-CoV-2+ HIV+ placentae were dysmorphic in shape compared to the flattened disc-like shape noted in the SARS-CoV-2+HIV-, SARS-CoV-2-HIV+ and SARS-CoV-2-HIV- placentae. Diffused syncytial knots and syncytial degeneration were observed in all placentae. Intermittent cytotrophoblast increase, perivillous and intravillous fibrin deposition, mononuclear inflammatory cells with widespread degeneration/necrosis of the syncytiotrophoblast and microcalcification were pronounced in the SARS-CoV-2+HIV+ compared to the SARS-CoV-2+HIV- placentae. Vascular pathological changes included thrombi, ectasis, mural hypertrophy and atherotic vessels.

Conclusion

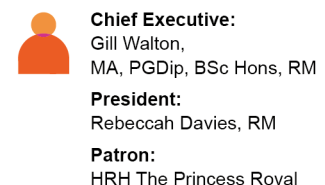
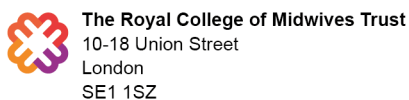
Elevated syncytial trophoblast injury, villitis, microcalcifications and mineralisation of the syncytial basement membrane in the AAP placentae may be due to SARS-CoV-2 viral transgression instead of HIV infection alone. Vascular malperfusion is suggestive of a hypoxic insult arising from a compensatory response to meet the fetal oxygen and nutrient demands of an AAP. Placentae from HIV infected women on antiretroviral treatment were characterised by vascular malperfusion. (Author)

Full URL: <https://doi.org/10.1016/j.eurox.2022.100153>

2022-04718

Maternity services: visiting restrictions [written answer]. Northern Ireland Assembly (2022), Hansard Written question AQW 214/22-27, 19 May 2022

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The Minister of Health responds to a written question asked by Mr Pádraig Delargy, regarding whether all COVID-19 restrictions have been relaxed in maternity services and settings. (LDO)

Full URL: <http://aims.niassembly.gov.uk/questions/printquestionssummary.aspx?docid=373642>

2022-04662

Impact of COVID-19 pandemic on maternal and neonatal morbidities in the United States. Gulersen M, Lenchner E, Grunebaum A, et al (2022), American Journal of Obstetrics & Gynecology MFM vol 4, no 5, September 2022, 100667

Research letter aiming to evaluate whether the COVID-19 pandemic had an impact on overall rates of preterm birth and maternal and neonatal complications in the United States. Results suggest there was no increase in preterm birth during the pandemic, but the likelihood of complications increased such as gestational hypertension, pre-eclampsia and pre-gestational diabetes. (LDO)

Full URL: <https://doi.org/10.1016/j.ajogmf.2022.100667>

2022-04606

Evaluation of maternal-infant dyad inflammatory cytokines in pregnancies affected by maternal SARS-CoV-2 infection in early and late gestation. Taglauer ES, Dhole Y, Akuamoah-Boateng J, et al (2022), Journal of Perinatology vol 42, no 10, October 2022, pp 1319–1327

Objective

SARS-CoV-2 infection induces significant inflammatory cytokine production in adults, but infant cytokine signatures in pregnancies affected by maternal SARS-CoV-2 are less well characterized. We aimed to evaluate cytokine profiles of mothers and their infants following COVID-19 in pregnancy.

Study design

Serum samples at delivery from 31 mother-infant dyads with maternal SARS-CoV-2 infection in pregnancy (COVID) were examined in comparison to 29 control dyads (Control). Samples were evaluated using a 13-plex cytokine assay.

Results

In comparison with controls, interleukin (IL)-6 and interferon gamma-induced protein 10 (IP-10) were higher in COVID maternal and infant samples ($p < 0.05$) and IL-8 uniquely elevated in COVID infant samples ($p < 0.05$). Significant elevations in IL-6, IP-10, and IL-8 were found among both early (1st/2nd Trimester) and late (3rd Trimester) maternal SARS-CoV-2 infections.

Conclusions

Maternal SARS-CoV-2 infections throughout gestation are associated with increased maternal and infant inflammatory cytokines at birth with potential to impact long-term infant health. (Author)

Full URL: <https://doi.org/10.1038/s41372-022-01391-9>

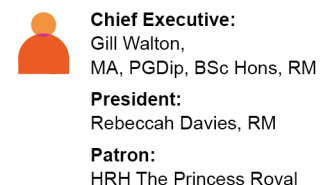
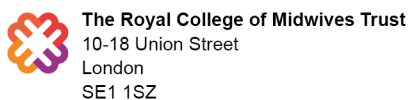
2022-04547

The rate of SARS-CoV-2 among asymptomatic non-immunised low-risk parturient women between the two waves.

Al-Hussaini TK, EzzEldin AM, Shaaban OM, et al (2022), Journal of Obstetrics and Gynaecology vol 42, no 6, 2022, pp 1868-1873

This study was conducted to evaluate the rate of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection and immunity among asymptomatic non-immunised low-risk parturient women and their newborns. A cross-sectional study conducted in a tertiary hospital during the nadir period of new cases in Egypt. All asymptomatic pregnant, low risk and non-immunised women were included. All eligible participants had been subjected to SARS-CoV-2 nasopharyngeal swabs according to CDC and sampling of maternal and umbilical blood to evaluate the presence of coronavirus disease 2019 (COVID-19) IgM and IgG antibodies by immunochromatographic assay. Two cases out of 171 (1.2%) parturient women were tested positive for PCR swab to COVID-19 infection. Furthermore, COVID-19 IgG and IgM antibodies testing showed that 67.8% of women were negative for both IgG and IGM, 24.6% were positive for IgG only, 4.1% were positive for IgM only, while 3.5% were positive for both IgG and IgM. Regarding neonatal

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testing for immunity, 28.1% of the neonates were positive to IgG only and none for IgM.

The rate of positive PCR patients among asymptomatic low-risk parturient women was 1.2%. About quarter of women had got herd immunity as evident by positive IgG antibodies. IgG antibodies transferred to the neonates in almost all cases.

Impact Statement

What is already known on this subject? Coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has become a global public health emergency. Asymptomatic pregnant women with coronavirus disease can transmit their infection to their newborn, family members and the health care providers.

What do the results of this study add? The study showed very low (1.2%) prevalence of COVID positive cases among asymptomatic pregnant women admitted to our facility. Only two cases out of 171 parturient women tested PCR positive for COVID-19 infection (1.2%). SARS-Cov-2 IgG and IgM antibodies testing showed, about a quarter (24.6%) were positive for IgG antibodies, 4.1% were positive for IgM antibodies, while 3.5% were positive for both IgG and IgM. On the other hand, 28.1% of the neonates were positive to IgG only and none of the newborns had had IgM antibodies in their cord blood.

What are the implications of these findings for clinical practice and/or further research? The first wave of COVID-19 pandemic in Egypt left behind at least a quarter of pregnant women with a positive antibody denoting some immunity. This immunity is usually transmitted to the neonates in almost all cases. (Author)

2022-04321

Seroprevalence of SARS-CoV-2 antibodies among first-trimester pregnant women during the second wave of the pandemic in India. Sharma KA, Singh N, Hillman S, et al (2023), International Journal of Gynecology & Obstetrics vol 160, no 1, January 2023, pp 74-78

Objective

Data on the immune response to SARS-CoV-2 during pregnancy are lacking and the potential role and effect of SARS-CoV-2 vaccination in pregnancy is yet to be completely investigated.

Method

This is a cross-sectional observational study wherein pregnant women were tested for SARS-CoV-2 immunoglobulin M and immunoglobulin G levels, irrespective of their infective status or presence or symptomatology.

Result

Of the 220 pregnant women tested, 160 (72.7%) were SARS-CoV-2 IgG positive, 37 (16.8%) were SARS-CoV-2 IgM positive and 27 (16.9%) were both IgG and IgM positive. The average antibody titer found was 10.49 BAU/ml (± 14.0) and 0.6 (± 0.55) for anti-SARS-CoV-2 IgG and IgM non neutralizing antibodies respectively. ROC analysis for SARS-CoV-2 IgG positivity showed a cut-off value of 1.19 with a sensitivity of 99.3% (0.99 AUC, 95% CI) and specificity of 98.3% (0.99 AUC, 95% CI), respectively. Similarly, ROC analysis for SARS-CoV-2 IgM positivity showed a cut-off value of 1 with a sensitivity of 97.3% (0.99 AUC, 95% CI) and specificity of 98.9% (0.99 AUC, 95% CI), respectively.

Conclusion

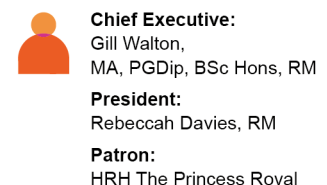
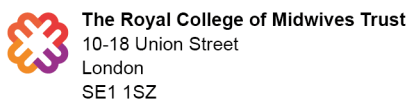
First trimester sero-molecular screening suggests a high prevalence of COVID antibodies in the study population of pregnant women in the first trimester, without the patients being symptomatic. (Author)

Full URL: <https://doi.org/10.1002/ijgo.14189>

2022-04229

Effectiveness and safety of available treatments for COVID-19 during pregnancy: a critical review. Favilli A, Gentili MM,

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Background

COVID-19 is a pandemic disease caused by the SARS-CoV-2 and it spread globally in the last few months. The complete lack of specific treatment forced clinicians to use old drugs, chosen for their efficacy against similar viruses or their in vitro activity. Trials on patients are ongoing but the majority of information comes from small case series and single center reports. We aimed to provide a literature review on the putative effectiveness and safety of available treatments for COVID-19 in pregnant women.

Methods

We reviewed all the available literature concerning the drugs that have been used in the treatment of COVID-19 during pregnancy and whose safe assumption during pregnancy had been demonstrated by clinical studies (i.e. including studies on other infectious diseases). Drugs contra-indicated during pregnancy or with unknown adverse effects were not included in our review.

Results and conclusions

Clinical trials are not often conducted among pregnant patients for safety reasons and this means that drugs that may be effective in general population cannot be used for pregnant women due to the lack of knowledge of side effects in this category of people. The choice to use a specific drug for COVID-19 in pregnancy should take into account benefits and possible adverse events in each single case. In the current situation of uncertainty and poor knowledge about the management of COVID-19 during pregnancy, this present overview may provide useful information for physicians with practical implications. (Author)

Full URL: <https://doi.org/10.1080/14767058.2020.1774875>

2022-04194

Relationship between pregnancy and coronavirus: what we know. Forestieri S, Marcialis MA, Migliore L, et al (2022), Journal of Maternal-Fetal and Neonatal Medicine vol 35, no 10, 2022, pp 1997-2008

The identification in China in December 2019 of a new coronavirus (SARS-CoV-2) immediately rekindled the spotlight on a problem also addressed in the past during the epidemics of SARS in 2002–2003 and MERS in 2012: the implications of a possible infection during pregnancy, both for pregnant women and for fetuses and infants. Pregnancy is characterized by some changes involving both the immune system and the pulmonary physiology, exposing the pregnant woman to a greater susceptibility to viral infections and more serious complications. The objective of this review is therefore to analyze the relationship between pregnancy and known coronaviruses, with particular reference to SARS-CoV-2. (Author)

Full URL: <https://doi.org/10.1080/14767058.2020.1771692>

2022-04134

Severe maternal morbidity in pregnant patients with SARS-CoV-2 infection. Gulersen M, Rochelson B, Shan W, et al (2022), American Journal of Obstetrics & Gynecology MFM vol 4, no 4, July 2022, 100636

Background

While the increased risk of severe illness and adverse pregnancy outcomes associated with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection in pregnancy are well described, the association of infection with severe maternal morbidity (SMM) has not been well characterized.

Objective

To evaluate the risk of SMM associated with SARS-CoV-2 infection in pregnancy.

Study Design

A multicenter retrospective cohort study of all pregnant patients who had SARS-CoV-2 testing and delivered in a New York health system between March 1st, 2020 and March 1st, 2021. Patients with missing test results were excluded.

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The primary outcome of SMM, derived from the American College of Obstetricians and Gynecologists and Society for Maternal-Fetal Medicine example list of diagnoses and complications, was compared between two groups: patients who tested positive for SARS-CoV-2 during pregnancy versus patients who tested negative. Secondary outcomes included subgroups of SMM. Multivariable logistic regression was used to adjust for potential confounders such as maternal demographics, neighborhood socioeconomic status, hospital location, and pregnancy-related complications. A subanalysis was performed to determine whether the risk of severe obstetrical hemorrhage and hypertension/neurologic morbidity differed based on timing of SARS-CoV-2 infection: those who tested positive for SARS-CoV-2 at their delivery hospitalization (i.e. active infection), and those who tested positive during pregnancy but negative at their delivery hospitalization (i.e. resolved infection).

Results

Of the 22,483 patients included, 1,653 (7.4%) tested positive for SARS-CoV-2 infection. Patients with SARS-CoV2 infection were more commonly Black, multiracial, Hispanic, non-English speaking, using Medicaid insurance, multiparous, and from neighborhoods with a lower socioeconomic status. Patients with SARS-CoV-2 infection were at an increased risk of SMM compared to those without infection (9.3 vs. 6.5%; adjusted OR 1.52, 95% CI 1.21-1.88). Patients with SARS-CoV-2 infection were also at an increased risk of severe obstetrical hemorrhage (1.1% vs. 0.5%; aOR 1.78, 95% CI 1.04-2.88), pulmonary morbidity (2.0% vs. 0.5%; aOR 3.90, 95% CI 2.52-5.89), and intensive care unit (ICU) admission (1.8% vs. 0.5%; aOR 3.29, 95% CI 2.09-5.04) compared to those without infection. The risk of hypertension/neurologic morbidity was similar between the two groups. Timing of SARS-CoV-2 infection (whether active or resolved at time of delivery) was not associated with the risk of severe obstetrical hemorrhage or hypertension/neurologic morbidity compared to those without infection.

Conclusions

SARS-CoV-2 infection in pregnancy is associated with an increased risk of SMM, severe obstetrical hemorrhage, pulmonary morbidity, and ICU admission. These data highlight the need for obstetrical unit preparedness in caring for patients with SARS-CoV-2 infection, continued public health efforts aimed at minimizing risk of infection and support including this select population in investigational therapy and vaccine trials. (Author)

Full URL: <https://doi.org/10.1016/j.ajogmf.2022.100636>

2022-04016

Effect of restrictions imposed due to COVID-19 pandemic on the antenatal care and pregnancy outcomes: a prospective observational study from rural North India. Goyal LD, Garg P, Verma M, et al (2022), *BMJ Open* vol 12, no 4, April 2022, e059701

Objectives To assess the difficulties faced by the pregnant women in seeking appropriate antenatal care due to the restrictions imposed during the COVID-19 pandemic; assess the difficulties encountered during delivery and postpartum period; the suitability of the teleconsultation services offered; effect of COVID-19 infection on pregnancy outcomes and the effect of restrictions on the nutrition profile of the pregnant women.

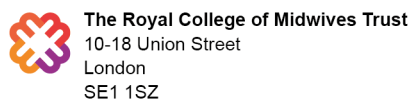
Design Prospective observational study.

Setting and participants We included 1374 pregnant women from the rural areas of three districts of Punjab, India registered at government health centres before the implementation of lockdown due to the COVID-19 pandemic on 24 March 2020.

Primary and secondary outcome measures The primary outcome was the difficulties faced by the women during their pregnancies due to restrictions imposed during the lockdown. The secondary outcomes included the effect of COVID-19 infections on pregnancy outcomes, satisfaction from the telemedicine services and restrictions on the nutrition profile of the pregnant women.

Results One-third of the women (38.4%) considered their last pregnancy unplanned. Women faced difficulties due to

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the restrictions in getting adequate nutrition (76.5%), accessing transportation facilities (35.4%), consultations from doctors (22.4%) or getting an ultrasonography scan (48.7%). One-fifth (21.9%) of women could not access safe abortion services. Only 3.6% of respondents ever took any teleconsultation services offered by the government. Most of them felt unsatisfied compared with routine visits (77.5%). COVID-19-infected women were primarily asymptomatic (76.1%), but there was a high incidence of preterm birth (42.8%). Frontline workers could visit 64.3% of the women in the postpartum period despite restrictions.

Conclusions Lockdown compromised the antenatal care in our study area while the frontline workers attempted to minimise the inconvenience. Telemedicine services did not prove to be of many benefits to pregnant women and should only work as a supplement to the existing protocols of antenatal care. (Author)

Full URL: <http://dx.doi.org/10.1136/bmjopen-2021-059701>

2022-04012

Impact of the COVID-19 pandemic on intimate partner violence during pregnancy: evidence from a multimethods study of recently pregnant women in Ethiopia. Wood SN, Yirgu R, Wondimagegnehu A, et al (2022), BMJ Open vol 12, no 4, April 2022, e055790

Objectives This multimethods study aimed to: (1) compare the prevalence of intimate partner violence (IPV) during pregnancy pre-COVID-19 and during the COVID-19 pandemic using quantitative data and (2) contextualise pregnant women's IPV experiences during the COVID-19 pandemic through supplemental interviews.

Design Quantitative analyses use data from Performance Monitoring for Action-Ethiopia, a cohort of 2868 pregnant women that collects data at pregnancy, 6 weeks, 6 months and 1-year postpartum. Following 6-week postpartum survey, in-depth semistructured interviews contextualised experiences of IPV during pregnancy with a subset of participants (n=24).

Participants All pregnant women residing within six regions of Ethiopia, covering 91% of the population, were eligible for the cohort study (n=2868 completed baseline survey). Quantitative analyses were restricted to the 2388 women with complete 6-week survey data (retention=82.7%). A purposive sampling frame was used to select qualitative participants on baseline survey data, with inclusion criteria specifying completion of quantitative 6-week interview after the onset of the COVID-19 pandemic, and indication of IPV experience.

Interventions A State of Emergency in Ethiopia was declared in response to the COVID-19 pandemic approximately halfway through 6-week postpartum interview, enabling a natural experiment (n=1405 pre-COVID-19; n=983 during-COVID-19).

Primary outcome measures IPV during pregnancy was assessed via the 10-item Revised Conflict and Tactics Scale.

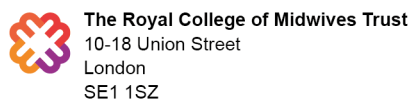
Results 1-in-10 women experienced any IPV during pregnancy prior to COVID-19 (10.5%), and prevalence of IPV during pregnancy increased to 15.1% during the COVID-19 pandemic (aOR=1.51; p=0.02). Stratified by residence, odds of IPV during the pandemic increased for urban women only (aOR=2.09; p=0.03), however, IPV prevalence was higher in rural regions at both time points. Qualitative data reveal COVID-19-related stressors, namely loss of household income and increased time spent within the household, exacerbated IPV.

Conclusions These multimethods results highlight the prevalent, severe violence that pregnant Ethiopian women experience, with pandemic-related increases concentrated in urban areas. Integration of IPV response and safety planning across the continuum of care can mitigate impact. (Author)

Full URL: <http://dx.doi.org/10.1136/bmjopen-2021-055790>

2022-04008

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Effects of the COVID-19 pandemic on antenatal care utilisation in Kenya: a cross-sectional study. Landrian A, Mboya J, Golub G, et al (2022), *BMJ Open* vol 12, no 4, April 2022, e058312

Objective The aim of this study was to assess the effects of COVID-19 on antenatal care (ANC) utilisation in Kenya, including women's reports of COVID-related barriers to ANC and correlates at the individual and household levels.

Design Cross-sectional study.

Setting Six public and private health facilities and associated catchment areas in Nairobi and Kiambu Counties in Kenya.

Participants Data were collected from 1729 women, including 1189 women who delivered in healthcare facilities before the COVID-19 pandemic (from September 2019–January 2020) and 540 women who delivered during the pandemic (from July through November 2020). Women who delivered during COVID-19 were sampled from the same catchment areas as the original sample of women who delivered before to compare ANC utilisation.

Primary and secondary outcome measures Timing of ANC initiation, number of ANC visits and adequate ANC utilisation were primary outcome measures. Among only women who delivered during COVID-19 only, we explored women's reports of the pandemic having affected their ability to access or attend ANC as a secondary outcome of interest.

Results Women who delivered during COVID-19 had significantly higher odds of delayed ANC initiation (ie, beginning ANC during the second vs first trimester) than women who delivered before (aOR 1.72, 95% CI 1.24 to 2.37), although no significant differences were detected in the odds of attending 4–7 or ≥8 ANC visits versus <4 ANC visits, respectively (aOR 1.12, 95% CI 0.86 to 1.44 and aOR 1.46, 95% CI 0.74 to 2.86). Nearly half (n=255/540; 47%) of women who delivered during COVID-19 reported that the pandemic affected their ability to access ANC.

Conclusions Strategies are needed to mitigate disruptions to ANC among pregnant women during pandemics and other public health, environmental, or political emergencies. (Author)

Full URL: <http://dx.doi.org/10.1136/bmjopen-2021-060185>

2022-03965

Satisfaction of pregnant women in a Facebook group led by midwives with information on prenatal care during the COVID-19 pandemic in Peru. De La Cruz-Ramirez YM, Olaza-Maguiña AF (2022), *The Practising Midwife* vol 25, no 5, May 2022, pp 42-46

The objective of this research was to determine the satisfaction of pregnant women in a Facebook group created and directed by midwives to provide information on prenatal care during the COVID-19 pandemic in Peru. A cross-sectional study was carried out, where 226 pregnant women answered an online questionnaire. It was concluded that the majority of pregnant women were fully satisfied with the information provided by midwives on prenatal care, highlighting the credibility of the information. Areas that could have been improved included the variety of topics covered and the way participants were treated. The variety of topics addressed and the cordial treatment among the participants are aspects susceptible to improvement. (Author)

2022-03948

Impact of new diagnostic pathway for gestational diabetes in time of COVID-19. Walker B, Edey J, Hall L, et al (2023), *Obstetric Medicine* vol 16, no 2, June 2023, pp 104–108

Background

In April 2020, the diagnostic criteria for gestational diabetes mellitus (GDM) changed in Queensland, with the goal of reducing exposure of pregnant women to COVID-19.

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Methods

A retrospective clinical audit was conducted at a regional hospital to compare the incidence of GDM, and specific maternal and neonatal outcomes four months before and after the change in guidelines was implemented.

Results

Less than 50% of diagnostic tests were performed according to new guidelines. There was a non-significant increase in the incidence of GDM (13.3% to 15.3%), and pharmacological treatments. Instrumental deliveries ($p = 0.01$) and shoulder dystocia ($p = 0.04$) increased following the change in guidelines. There were no differences in the incidence of elective and emergency caesarean delivery, macrosomia and fetal weight. Maternal pre-pregnancy body mass index (BMI) was higher in the COVID-19 GDM cohort ($p = 0.02$).

Conclusions

Despite the change in guidelines, there was a non-significant increase in the incidence of diagnosis of gestational diabetes. (Author)

Full URL: <https://doi.org/10.1177/1753495X221094899>

2022-03888

Clinical-pathological features in placentas of pregnancies with SARS-CoV-2 infection and adverse outcome: case series with and without congenital transmission. Zaigham M, Gisselsson D, Sand A, et al (2022), BJOG: An International Journal of Obstetrics and Gynaecology vol 129, no 8, July 2022, pp 1361-1374

Objective

To correlate clinical outcomes to pathology in SARS-CoV-2 infected placentas in stillborn and live-born infants presenting with fetal distress.

Design

Retrospective, observational.

Setting

Nationwide.

Population

Five stillborn and nine live-born infants from 13 pregnant women infected with SARS-CoV-2 seeking care at seven different maternity units in Sweden.

Methods

Clinical outcomes and placental pathology were studied in 14 cases (one twin pregnancy) of maternal SARS-CoV-2 infection with impaired fetal outcome. Outcomes were correlated to placental pathology in order to investigate the impact of virus-related pathology on the villous capillary endothelium, trophoblast and other cells.

Main outcome measures

Maternal and fetal clinical outcomes and placental pathology in stillborn and live-born infants.

Results

Reduced fetal movements were reported (77%) and time from onset of maternal COVID-19 symptoms to signs of fetal distress among live-born infants was 6 (3–12) days and to diagnosis of stillbirth 11 (2–25) days. Two of the live-born infants died during the postnatal period. Signs of fetal distress led to emergency caesarean section in all live-born infants with umbilical cord blood gases and low Apgar scores confirming intrauterine hypoxia. Five stillborn and one live-born neonate had confirmed congenital transmission. Massive perivillous fibrinoid deposition, intervillitis and trophoblast necrosis were associated with SARS-CoV-2 placental infection and congenital transmission.

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Conclusions

SARS-CoV-2 can cause rapid placental dysfunction with subsequent acute fetal hypoxia leading to intrauterine fetal compromise. Associated placental pathology included massive perivillous fibrinoid deposition, intervillitis and trophoblast degeneration. (Author)

Full URL: <https://doi.org/10.1111/1471-0528.17132>

2022-03861

Pregnancy and the Risk of In-Hospital Coronavirus Disease 2019 (COVID-19) Mortality. Pineles BL, Goodman KE, Pineles L, et al (2022), *Obstetrics & Gynecology* vol 139, no 5, May 2022, pp 846-854

OBJECTIVE:

To evaluate whether pregnancy is an independent risk factor for in-hospital mortality among patients of reproductive age hospitalized with coronavirus disease 2019 (COVID-19) viral pneumonia.

METHODS:

We conducted a retrospective cohort study (April 2020–May 2021) of 23,574 female inpatients aged 15–45 years with an International Classification of Diseases, Tenth Revision, Clinical Modification diagnosis code for COVID-19 discharged from 749 U.S. hospitals in the Premier Healthcare Database. We used a viral pneumonia diagnosis to select for patients with symptomatic COVID-19. The associations between pregnancy and in-hospital mortality, intensive care unit (ICU) admission, and mechanical ventilation were analyzed using propensity score–matched conditional logistic regression. Models were matched for age, marital status, race and ethnicity, Elixhauser comorbidity score, payer, hospital number of beds, season of discharge, hospital region, obesity, hypertension, diabetes mellitus, chronic pulmonary disease, deficiency anemias, depression, hypothyroidism, and liver disease.

RESULTS:

In-hospital mortality occurred in 1.1% of pregnant patients and 3.5% of nonpregnant patients hospitalized with COVID-19 and viral pneumonia (propensity score–matched odds ratio [OR] 0.39, 95% CI 0.25–0.63). The frequency of ICU admission for pregnant and nonpregnant patients was 22.0% and 17.7%, respectively (OR 1.34, 95% CI 1.15–1.55). Mechanical ventilation was used in 8.7% of both pregnant and nonpregnant patients (OR 1.05, 95% CI 0.86–1.29). Among patients who were admitted to an ICU, mortality was lower for pregnant compared with nonpregnant patients (OR 0.33, 95% CI 0.20–0.57), though mechanical ventilation rates were similar (35.7% vs 38.3%, OR 0.90, 95% CI 0.70–1.16). Among patients with mechanical ventilation, pregnant patients had a reduced risk of in-hospital mortality compared with nonpregnant patients (0.26, 95% CI 0.15–0.46).

CONCLUSION:

Despite a higher frequency of ICU admission, in-hospital mortality was lower among pregnant patients compared with nonpregnant patients with COVID-19 viral pneumonia, and these findings persisted after propensity score matching.

(Author)

Full URL: <https://doi.org/10.1097/AOG.0000000000004744>

2022-03720

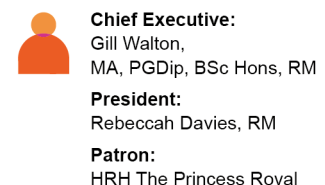
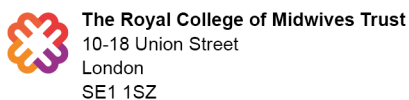
Association of SARS-CoV-2 Infection During Pregnancy With Maternal and Perinatal Outcomes. McClymont E, Albert AY, Alton GD, et al (2022), *JAMA (Journal of the American Medical Association)* vol 327, no 20, 24/31 May 2022, pp 1983-1991

Importance There are limited high-quality, population-level data about the effect of SARS-CoV-2 infection on pregnancy using contemporaneous comparator cohorts.

Objectives To describe maternal and perinatal outcomes associated with SARS-CoV-2 infection in pregnancy and to assess variables associated with severe disease in the pregnant population.

Design, Setting, and Participants CANCOVID-Preg is an observational surveillance program for SARS-CoV-2–affected

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pregnancies in Canada. This analysis presents exploratory, population-level data from 6 Canadian provinces for the period of March 1, 2020, to October 31, 2021. A total of 6012 pregnant persons with a positive SARS-CoV-2 polymerase chain reaction test result at any time in pregnancy (primarily due to symptomatic presentation) were included and compared with 2 contemporaneous groups including age-matched female individuals with SARS-CoV-2 and unaffected pregnant persons from the pandemic time period.

Exposure SARS-CoV-2 infection during pregnancy. Incident infections in pregnancy were reported to CANCOVID-Preg by participating provinces/territories.

Main Outcomes and Measures Maternal and perinatal outcomes associated with SARS-CoV-2 infection as well as risk factors for severe disease (ie, disease requiring hospitalization, admission to an intensive care unit/critical care unit, and/or oxygen therapy).

Results Among 6012 pregnant individuals with SARS-CoV-2 in Canada (median age, 31 [IQR, 28-35] years), the greatest proportion of cases were diagnosed at 28 to 37 weeks' gestation (35.7%). Non-White individuals were disproportionately represented. Being pregnant was associated with a significantly increased risk of SARS-CoV-2-related hospitalization compared with SARS-CoV-2 cases among all women aged 20 to 49 years in the general population of Canada (7.75% vs 2.93%; relative risk, 2.65 [95% CI, 2.41-2.88]) as well as an increased risk of intensive care unit/critical care unit admission (2.01% vs 0.37%; relative risk, 5.46 [95% CI, 4.50-6.53]). Increasing age, preexisting hypertension, and greater gestational age at diagnosis were significantly associated with worse maternal outcomes. The risk of preterm birth was significantly elevated among SARS-CoV-2-affected pregnancies (11.05% vs 6.76%; relative risk, 1.63 [95% CI, 1.52-1.76]), even in cases of milder disease not requiring hospitalization, compared with unaffected pregnancies during the same time period.

Conclusions and Relevance In this exploratory surveillance study conducted in Canada from March 2020 to October 2021, SARS-CoV-2 infection during pregnancy was significantly associated with increased risk of adverse maternal outcomes and preterm birth. (Author)

Full URL: <https://doi.org/10.1001/jama.2022.5906>

2022-03586

A case of temporary anhydramnios after COVID-19 infection. Kasuga Y, Sou Y, Fukuoka M, et al (2022), European Journal of Obstetrics & Gynecology and Reproductive Biology vol 272, May 2022, pp 255-256

Herein, we describe a case of temporary anhydramnios after a COVID-19 infection. (Author, edited)

Full URL: <https://doi.org/10.1016/j.ejogrb.2022.04.002>

2022-03581

"Never let a good crisis go to waste": Positives from disrupted maternity care in Australia during COVID-19. Klwugant D, Homer C, Dahlen H (2022), Midwifery vol 110, July 2022, 103340

Objective

Due to the COVID-19 pandemic, a number of changes to maternity care were rapidly introduced in all countries, including Australia, to reduce the risk of infection for pregnant women and their care providers. While many studies have reported on the negative effects of these changes, there is a paucity of evidence on factors which women and their providers perceived as positive and useful for future maternity care.

Design

Data was analysed from the Birth in the time of COVID-19 (BITTOC 2020) study survey. Conventional content analysis and descriptive statistics were used to analyse the data and examine which aspects of COVID-amended care women experienced as positive. Data from women were compared to data from midwives.

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Setting

This project took place in Australia in 2020-2021.

Participants

The survey was distributed to women who gave birth and midwives who worked in Australia during the COVID-19 pandemic (March 2020 onwards).

Measurements and findings

Women reported a variety of positives from their maternity care during COVID-19. These included both care-related factors as well as contextual factors. The most commonly mentioned positives for pregnant and postnatal women were care-related, namely fewer visitors in hospital, having increased access to telehealth services. These were also the most commonly reported positives by midwives. Having midwifery continuity of care models, giving birth at home and having their partner work from home were also highlighted by women as positives.

Key conclusions

Despite the negative effect of COVID-19-related restrictions on maternity care, a variety of changes were viewed as positive by both women and midwives, with strong agreement between the two groups.

Implications for practice

These findings provide evidence to support the inclusion of these positive elements of care and ensure that the lessons learned from the pandemic are utilised to improve maternity care in Australia going forward. (Author)

Full URL: <https://doi.org/10.1016/j.midw.2022.103340>

2022-03575

Trends in Maternal Outcomes During the COVID-19 Pandemic in Alabama From 2016 to 2021. Shukla VV, Rahman F, Shen X, et al (2022), JAMA Network Open vol 5, no 4, April 2022, e222681

This cohort study assesses whether the COVID-19 pandemic is associated with an increase in the risk of maternal morbidity and mortality in Alabama from 2016 to 2021. (Author)

Full URL: <https://doi.org/10.1001/jamanetworkopen.2022.2681>

2022-03458

Systematic review and critical evaluation of quality of clinical practice guidelines on the management of SARS-CoV-2 infection in pregnancy. Di Girolamo R, Khalil A, Rizzo G, et al (2022), American Journal of Obstetrics & Gynecology MFM vol 4, no 5, September 2022, 100654

Objective: To systematically identify and critically assess the quality of clinical practice guidelines (CPGs) for the management of SARS-CoV-2 infection in pregnancy.

Data Source: Medline, Scopus and ISI Web of Science databases were searched until 15 th of February.

Study eligibility criteria: Inclusion criteria were CPGs on the management of SARS-CoV-2 infection in pregnancy. The risk of bias and quality assessment of the included CPGs were performed using “The Appraisal of Guidelines for REsearch and Evaluation (AGREE II)” tool, which is considered as the gold standard for CPG quality assessment. To define a CPG as of good quality we adopted the cut-off score according to Amer et al.: if the overall guideline score was >60%, CPGs was recommended.

Study appraisal and synthesis methods: The following clinical points related to the management of pregnant women with SARS-CoV-2 infection were addressed: criteria for maternal hospitalization, recommendations for follow-up fetal growth scan, specific recommendations against invasive procedures, management of labor, timing of delivery, postpartum care and vaccination strategy.

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Results: Twenty-eight CPGs were included. All of them recommended hospitalization only for severe disease. Forty-six percent (6/13) of CPGs suggested a fetal growth scan after SARS-CoV-2 infection while 23.1% (3/13) did not support this practice. Thromboprophylaxis with low molecular weight heparin (LMWH) was recommended in symptomatic women by 77.1% (7/9) of the CPGs. None of the CPGs recommended to administer corticosteroids only for the presence of SARS-CoV-2 infection in preterm gestation, unless specific obstetric indication exists. Elective induction of labor from 39 weeks of gestation was suggested by 18.1% (2/11) of the CPGs included in the present review, while 45.4% (5/11) did not recommend elective induction unless other obstetric indications co-existed. Twenty-seven percent (3/11) of the CPGs suggested shortening of the second stage of labor and active pushing was supported by 18.1% (2/11) of them. A general agreement was found among the CPGs in not recommending Cesarean Section (CS) only for the presence of maternal infection and recommending vaccine booster at least 6 months after the primary series of vaccination. The AGREE II standardized domain scores for the first overall assessment (OA1) of CPGs had a mean of 50% (SD±21.82%) and 9 CPGs scored more than 60%.

Conclusions: A significant heterogeneity was found in some major aspects of the main aspects of the management of SARS-CoV-2 infection in pregnancy reported by the published CPGs. (Author) [Erratum: American Journal of Obstetrics & Gynecology MFM, vol 4, no 6, November 2022, 100683. <https://doi.org/10.1016/j.ajogmf.2022.100683>]

Full URL: <https://doi.org/10.1016/j.ajogmf.2022.100654>

2022-03408

Impact of SARS-CoV-2 infection on risk of prematurity, birthweight and obstetric complications: A multivariate analysis from a nationwide, population-based retrospective cohort study. Simon E, Gouyon J-B, Cottenet J, et al (2022), BJOG: An International Journal of Obstetrics and Gynaecology vol 129, no 7, June 2022, pp 1084-1094

Objective

To determine the impact of maternal coronavirus disease 2019 (COVID-19) on prematurity, birthweight and obstetric complications.

Design

Nationwide, population-based retrospective cohort study.

Setting

National Programme de Médicalisation des Systèmes d'Information database in France.

Population

All single births from March to December 2020: 510 387 deliveries, including 2927 (0.6%) with confirmed COVID-19 in the mother and/or the newborn.

Methods

The group with COVID-19 was compared with the group without COVID-19 using the chi-square test or Fisher's exact test, and the Student's t test or Mann-Whitney U test. Logistic regressions were used to study the effect of COVID-19 on the risk of prematurity or macrosomia (birthweight \geq 4500 g).

Main outcome measures

Prematurity less than 37, less than 28, 28–31, or 32–36 weeks of gestation; birthweight; obstetric complications.

Results

In singleton pregnancies, COVID-19 was associated with obstetric complications such as hypertension (2.8% versus 2.0%, $p < 0.01$), pre-eclampsia (3.6% versus 2.0%, $p < 0.01$), diabetes (18.8% versus 14.4%, $p < 0.01$) and caesarean delivery (26.8% versus 19.7%, $p < 0.01$). Among pregnant women with COVID-19, there was more prematurity between 28 and 31 weeks of gestation (1.3% versus 0.6%, $p < 0.01$) and between 32 and 36 weeks of gestation (7.7% versus 4.3%,

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$p < 0.01$), and more macrosomia (1.0% versus 0.7%, $p = 0.04$), but there was no difference in small-for-gestational-age newborns (6.3% versus 8.7%, $p = 0.15$). Logistic regression analysis for prematurity showed an adjusted odds ratio (aOR) of 1.77 (95% CI 1.55–2.01) for COVID-19. For macrosomia, COVID-19 resulted in non-significant aOR of 1.38 (95% CI 0.95–2.00).

Conclusions

COVID-19 is a risk factor for prematurity, even after adjustment for other risk factors. (Author)

Full URL: <https://doi.org/10.1111/1471-0528.17135>

2022-03396

Knowledge, attitudes, and practices related to the COVID-19 pandemic among pregnant women in Bangkok, Thailand.

Kunno J, Yubonpant P, Supawattanbodee B, et al (2022), BMC Pregnancy and Childbirth vol 22, no 357, 23 April 2022

Background

Pregnancy is associated with increased risk for severe COVID-19. Few studies have examined knowledge, attitudes, and practices (KAP) related to pregnancy during the pandemic. This study investigated the association between socio-demographic characteristics and KAP related to COVID-19 among pregnant women in an urban community in Thailand.

Methods

A cross-sectional online survey was distributed among pregnant women in Bangkok, Thailand from July–August 2021. Binary logistic regression was conducted to test the association between socio-demographic characteristics and KAP related to COVID-19, and a Spearman's analysis tested correlations between KAP scores.

Results

A total of 150 pregnancy survey responses were received. Most participants were third trimester (27–40 weeks gestation; 68.0%). Pregnancy had never been risked contracting COVID-19 (84.7%). Most expressed concerns about being infected with COVID-19 during pregnancy and following birth (94.0 and 70.0%, respectively). The results of binary logistic regression analysis found associations between knowledge and marital status (OR = 4.983, 95%CI 1.894–13.107). In addition, having a bachelor's degree or higher was associated with higher attitude scores (OR = 2.733, 95%CI 1.045–7.149), as was being aged 26–30 (OR = 2.413 95%CI 0.882–6.602) and 31–35 years of age (OR = 2.518–2.664, 95%CI 0.841–8.442). Higher practice scores were associated with having a bachelor's degree or higher (OR = 2.285 95%CI 1.110–6.146), and income $\geq 15,001$ bath (OR = 4.747 95%CI 1.588–14.192). Correlation analysis found a weak positive correlation between knowledge and practice scores ($r = 0.210$, p -value = 0.01).

Conclusion

Participants overall had high KAP scores. This study can guide public health strategies regarding pregnant women and COVID-19. We recommend that interventions to improve and attitude and practice scores. Knowledge on pregnancy and COVID-19 should focus on reducing fear and improving attitudes toward the care of patients as well as the promotion of preventive practices. (Author)

Full URL: <https://doi.org/10.1186/s12884-022-04612-3>

2022-03369

Case series of COVID-19 infection in pregnancy complicated by ketoacidosis and symptomatic breathlessness. Thorne

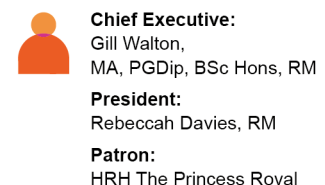
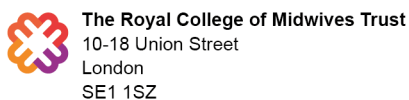
I, Steele S, Martineau M, et al (2022), Obstetric Medicine vol 15, no 1, March 2022, pp 50-53

Background

The differential diagnosis of acute shortness of breath in a pregnant woman with COVID-19 is broad. Pregnancy is a ketosis-prone state, which can result in metabolic acidosis and tachypnoea.

Methods

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We describe four pregnant women with COVID-19 and breathlessness where ketoacidosis was found to contribute to symptomatic tachypnoea.

Results

One patient did not have associated COVID-19 pneumonitis, but presented with severe tachypnoea and metabolic acidosis; three women had pneumonitis and metabolic acidosis. Corrective treatment for the metabolic abnormalities resulted in resolution of the ketoacidosis in all cases. No women had coexistent diabetes.

Conclusion

This is the first series of COVID-19 in pregnancy complicated by ketoacidosis and symptomatic tachypnoea. Ketoacidosis associated with COVID-19 is an important cause of tachypnoea requiring specific treatment, which should not be overlooked. Potential mechanisms for this are discussed with a framework for interpretation of blood gas results during pregnancy. (Author)

Full URL: <https://doi.org/10.1177%2F1753495X211024511>

2022-03361

Considerations for women with COVID-19 admitted to hospital. Coad F, Frise C (2022), *Obstetric Medicine* 16 March 2022, online

The number of pregnant women being admitted with severe COVID-19 infection and dying has increased with each wave of the pandemic. These women often present unique challenges to the medical and obstetric teams given the changes in physiology that occur in pregnancy, affecting assessment and management, as well as the practical difficulties such as the ideal location of care. Whilst the basis of treatment remains the same, there are nuances to caring for pregnant women that need considerable thought and multidisciplinary collaboration. Obstetricians, neonatologists, midwives, intensivists, anaesthetists and physicians may all be involved at some point, depending on the gestation and severity of illness. Implementing a COVID-19 in pregnancy guideline or checklist for your hospital will help ensure pregnant women are managed in a safe and timely manner. Here described are some key recommendations to help in the management of pregnant women admitted with COVID-19. (Author)

2022-03335

COVID-19: clinical presentation and implications. A primer for obstetricians. Dahan MH, Steiner N (2022), *Journal of Maternal-Fetal and Neonatal Medicine* vol 35, no 12, 2022, pp 2424-2426

Although, many obstetricians (OBs) are fighting the war on COVID-19 as we speak, others have not yet had contact with these patients, practicing in areas where the infection rates are low and therefore, the clinical presentation remains unknown. This article was developed to shed light on this enigma. It is based on published studies and physician experience treating these patients. (Author)

Full URL: <https://doi.org/10.1080/14767058.2020.1777274>

2022-03321

Removal of Covid-19 guidance on protecting pregnant nurses branded 'reckless'. Ford M (2022), *Nursing Times* 22 April 2022

Health unions and organisations have raised serious concerns about the government's "reckless" removal of Covid-19 guidance on how pregnant staff should be protected in the workplace. (Author)

2022-03294

Diagnosis and management of covid-19 in pregnancy. Nana M, Hodson K, Lucas N, et al (2022), *BMJ* vol 377, no 8343, 26 April 2022, e069739

Pregnant women with covid-19 are at greater risk of severe disease than their non-pregnant peers, and yet they are frequently denied investigations or treatments because of unfounded concerns about risk to the fetus. The basic

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principles of diagnosing and managing covid-19 are the same as for non-pregnant patients, and a multidisciplinary, expert team approach is essential to ensure optimal care. During pregnancy, treatment with corticosteroids should be modified to use non-fluorinated glucocorticoids. IL-6 inhibitors and monoclonal antibodies, together with specific antiviral therapies, may also be considered. Prophylaxis against venous thromboembolism is important. Women may require respiratory support with oxygen, non-invasive ventilation, ventilation in a prone position (either awake or during invasive ventilation), intubation and ventilation, and extracorporeal membrane oxygenation (ECMO). Pregnancy is not a contraindication for any of these supportive therapies, and the criteria for providing them are the same as in the general population. Decisions regarding timing, place, and mode of delivery should be taken with a multidisciplinary team including obstetricians, physicians, anesthetists, and intensivists experienced in the care of covid-19 in pregnancy. Ideally these decisions should take place in consultation with centers that have experience and expertise in all these specialties. (Author)

Full URL: <https://doi.org/10.1136/bmj-2021-069739>

2022-03106

Maternal and neonatal outcomes of pregnancies with COVID-19 after medically assisted reproduction – results from the prospective Covid-19-Related Obstetric and Neonatal Outcome Study (CRONOS). Ziert Y, Abou-Dakn M, Backes C, et al (2022), American Journal of Obstetrics & Gynecology (AJOG) vol 227, no 3, September 2022, pp 495.e1-495.e11

Background

Severe acute respiratory syndrome coronavirus type 2 infections in pregnancy have been associated with maternal morbidity, admission to intensive care, and adverse perinatal outcomes such as preterm birth, stillbirth and hypertensive disorders of pregnancy. It is unclear whether in women with COVID-19 medically assisted reproduction additionally affects maternal and neonatal outcomes.

Objective

To evaluate the effect of medically assisted reproduction on maternal and neonatal outcomes of women with COVID-19 in pregnancy.

Study design

A total of 1,485 women with COVID-19 registered in the Covid-19 Related Obstetric and Neonatal Outcome Study, a multicentric prospective observational cohort study, were included. Maternal and neonatal outcomes of 65 pregnancies achieved with medically assisted reproduction and 1,420 spontaneously conceived pregnancies were compared. We used univariate and multivariate (multinomial) logistic regressions to estimate (un)adjusted odds ratios and 95% confidence intervals for adverse outcomes.

Results

Compared to women after spontaneous conceptions with COVID-19, the incidence of COVID-19 associated adverse outcomes (e.g. pneumonia, admission to intensive care, death) was not different than in women after medically assisted reproduction pregnancies. Yet, the risk of obstetric and neonatal complications was higher in pregnancies achieved through medically assisted reproduction. However, medically assisted reproduction was not the primary risk factor for adverse maternal and neonatal outcomes, e.g. pregnancy-related hypertensive disorders, gestational diabetes mellitus, cervical insufficiency, peripartum hemorrhage, delivery by caesarean section, preterm birth or admission to neonatal intensive care. Maternal age, multiple pregnancies, nulliparity, BMI >30 (before pregnancy) and multiple gestation contributed differently to the increased risks of adverse pregnancy outcomes in women with COVID-19, independent of medically assisted reproduction.

Conclusion


Although women with COVID-19 who conceived through fertility treatment experienced a higher incidence of adverse obstetric and neonatal complications than women with spontaneous conceptions, medically assisted reproduction was not the primary risk factor. (Author)

Full URL: <https://doi.org/10.1016/j.ajog.2022.04.021>


2022-03104

Increase in preterm stillbirths in association with reduction in iatrogenic preterm births during COVID-19 lockdown in

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Australia: a multi-centre cohort study. Hui L, Marzan MB, Potenza S, et al (2022), American Journal of Obstetrics & Gynecology (AJOG) vol 227, no 3, September 2022, pp 491.e1-491.e17

Background

The COVID-19 pandemic has been associated with a worsening of perinatal outcomes in many regions. Melbourne, Australia, had one of the longest and most stringent lockdowns in the world in 2020, while recording only rare instances of COVID-19 infection in pregnant women.

Objective

The aim of this study was to compare stillbirth and preterm birth rates in women who were exposed or unexposed to lockdown restrictions during pregnancy.

Study design

Retrospective multi-centre cohort study of perinatal outcomes in Melbourne before and during COVID-19 lockdown. Lockdown period was defined as 23 March 2020 to 14 March 2021. Routinely-collected maternity data from all 12 public hospitals in Melbourne were obtained on singleton pregnancies > 24 weeks gestation without congenital anomalies. We defined the lockdown-exposed cohort as those women for whom weeks 20-40 of gestation occurred during lockdown, and the unexposed control group as women from the corresponding calendar periods 12 and 24 months prior. The main outcome measures were: stillbirth, preterm birth, fetal growth restriction (birth weight < 3rd centile), and iatrogenic preterm birth for fetal compromise. We performed multivariable logistic regression analysis to compare the odds of stillbirth, preterm birth, fetal growth restriction, and iatrogenic preterm birth for fetal compromise, adjusting for multiple covariates.

Results

There were 24,817 births in the exposed and 50,017 births in the control group. There was a significantly higher risk of preterm stillbirth in the exposed group compared with the control group (0.26% vs 0.18%, aOR 1.49, 95%CI 1.08-2.05, P = 0.015). There was also a significant reduction in preterm birth of live infants < 37 weeks (5.68% vs 6.07%, aOR 0.93, 95%CI 0.87-0.99, P = 0.02), largely mediated by a significant reduction in iatrogenic preterm birth (3.01% vs 3.27%, aOR 0.91, 95%CI 0.83-0.99, P = 0.03), including iatrogenic preterm birth for fetal compromise (1.25% vs 1.51%, aOR 0.82, 95%CI 0.71-0.93, P = 0.003). There were also significant reductions in special care nursery admissions during lockdown (11.53% vs 12.51%, aOR 0.90, 95%CI 0.86-0.95, P < 0.0001). There was a trend to fewer spontaneous preterm births < 37 weeks in the exposed group of a similar magnitude to that reported in other countries (2.69% vs 2.82%, aOR 0.95, 95%CI 0.87-1.05, P = 0.32).

Conclusions

Lockdown restrictions in Melbourne, Australia were associated with a significant reduction in iatrogenic preterm birth for fetal compromise and a significant increase in preterm stillbirths. This raises concerns that pandemic conditions in 2020 may have led to a failure to identify and appropriately care for pregnant women at increased risk of antepartum stillbirth. Further research is required to understand the relationship between these two findings and to inform our ongoing responses to the pandemic. (Author)


Full URL: <https://doi.org/10.1016/j.ajog.2022.04.022>

2022-03089


Vitamin D may prevent COVID-19 induced pregnancy complication. Al-Kaleel A, Al-Gailani L, Demir M, et al (2022), Medical Hypotheses vol 158, January 2022, 110733

SARS-CoV-2 enters target cells via the ACE2 receptor and downregulates it. ACE2 exhibits high catalytic activity to produce Angiotensin 1-7 (Ang-1-7), which has a vasodilator effect and also inactivates the vasoconstrictor Angiotensin II. In normal pregnancy ACE2 expression is raising in the uterus and placenta. Ang-1-7 levels in plasma are significantly higher in third-trimester pregnant women when compared to non-pregnant women. This may be contributing to systemic vasodilation and reduced blood pressure and modulating hemodynamics during pregnancy. Interestingly, Ang-1-7 plasma levels are lower in pregnancies complicated by pre-eclampsia than normal pregnancies. COVID-19 infection increased the inflammatory cytokines and reduced ACE2 level. This may lead to pre-eclampsia or hypertensive pregnancies, then increasing the perinatal and maternal mortality and morbidity. Vitamin D increased ACE2 expression and Ang-1-7 plasma levels and also decreased Ang II level in plasma. Moreover, Vitamin D reduced the inflammatory cytokine storm. So, Vitamin D supplementation can prevent the risk of preeclampsia or

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2022-03041

Differences and similarities in endothelial and angiogenic profiles of preeclampsia and COVID-19 in pregnancy.

Palomo M, Youssef L, Ramos A, et al (2022), American Journal of Obstetrics & Gynecology (AJOG) vol 227, no 2, August 2022, pp 277.e1-277.e16

Background

COVID-19 presents a spectrum of signs and symptoms in pregnant women that might resemble preeclampsia. Differentiation between severe COVID-19 and preeclampsia is difficult in some cases.

Objective

To study biomarkers of endothelial damage, coagulation, innate immune response, and angiogenesis in preeclampsia and COVID-19 in pregnancy in addition to in vitro alterations in endothelial cells exposed to sera from pregnant women with preeclampsia and COVID-19.

Study Design

Plasma and sera samples were obtained from pregnant women with COVID-19 infection classified into mild (n=10) or severe (n=9) and from women with normotensive pregnancies as controls (n=10) and patients with preeclampsia (n=13). A panel of plasmatic biomarkers was assessed, including vascular cell adhesion molecule-1, soluble tumor necrosis factor-receptor I, heparan sulfate, von Willebrand factor antigen (activity and multimeric pattern), α 2-antiplasmin, C5b9, neutrophil extracellular traps, placental growth factor, soluble fms-like tyrosine kinase-1, and angiopoietin 2. In addition, microvascular endothelial cells were exposed to patients' sera, and changes in the cell expression of intercellular adhesion molecule 1 on cell membranes and von Willebrand factor release to the extracellular matrix were evaluated through immunofluorescence. Changes in inflammation cell signaling pathways were also assessed by of p38 mitogen-activated protein kinase phosphorylation. Statistical analysis included univariate and multivariate methods.

Results

Biomarker profiles of patients with mild COVID-19 were similar to those of controls. Both preeclampsia and severe COVID-19 showed significant alterations in most circulating biomarkers with distinctive profiles. Whereas severe COVID-19 exhibited higher concentrations of vascular cell adhesion molecule-1, soluble tumor necrosis factor- α receptor I, heparan sulfate, von Willebrand factor antigen, and neutrophil extracellular traps, with a significant reduction of placental growth factor compared with controls, preeclampsia presented a marked increase in vascular cell adhesion molecule-1 and soluble tumor necrosis factor- α receptor I (significantly increased compared with controls and patients with severe COVID-19), with a striking reduction in von Willebrand factor antigen, von Willebrand factor activity, and α 2-antiplasmin. As expected, reduced placental growth factor, increased soluble fms-like tyrosine kinase-1 and angiopoietin 2, and a very high soluble fms-like tyrosine kinase-1 to placental growth factor ratio were also observed in preeclampsia. In addition, a significant increase in C5b9 and neutrophil extracellular traps was also detected in preeclampsia compared with controls. Principal component analysis demonstrated a clear separation between patients with preeclampsia and the other groups (first and second components explained 42.2% and 13.5% of the variance), mainly differentiated by variables related to von Willebrand factor, soluble tumor necrosis factor-receptor I, heparan sulfate, and soluble fms-like tyrosine kinase-1. Von Willebrand factor multimeric analysis revealed the absence of von Willebrand factor high-molecular-weight multimers in preeclampsia (similar profile to von Willebrand disease type 2A), whereas in healthy pregnancies and COVID-19 patients, von Willebrand factor multimeric pattern was normal.

Sera from both preeclampsia and severe COVID-19 patients induced an overexpression of intercellular adhesion molecule 1 and von Willebrand factor in endothelial cells in culture compared with controls. However, the effect of preeclampsia was less pronounced than the that of severe COVID-19. Immunoblots of lysates from endothelial cells exposed to mild and severe COVID-19 and preeclampsia sera showed an increase in p38 mitogen-activated protein kinase phosphorylation. Patients with severe COVID-19 and preeclampsia were statistically different from controls, suggesting that both severe COVID-19 and preeclampsia sera can activate inflammatory signaling pathways.

Conclusion

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Although similar in in vitro endothelial dysfunction, preeclampsia and severe COVID-19 exhibit distinctive profiles of circulating biomarkers related to endothelial damage, coagulopathy, and angiogenic imbalance that could aid in the differential diagnosis of these entities. (Author)

Full URL: <https://doi.org/10.1016/j.ajog.2022.03.048>

2022-03010

Guidance for people previously considered clinically extremely vulnerable from COVID-19. Department of Health and Social Care (2022), 1 April 2022

Government advice for those who had previously received a letter or email identifying them as clinically extremely vulnerable (CEV) during the coronavirus pandemic. Includes advice on vaccination against COVID-19 in pregnancy.

(JSM)

Full URL: <https://www.gov.uk/government/publications/guidance-on-shielding-and-protecting-extremely-vulnerable-persons-from-covid-19/guidance-on-shielding-and-protecting-extremely-vulnerable-persons-from-covid-19>

2022-02975

Comparison of clinical features and perinatal outcomes between pre-variant and post-variant periods in pregnant women with SARS-CoV-2: analysis of 1935 cases. Sahin D, Tanacan A, Anuk AT, et al (2022), Archives of Gynecology and Obstetrics vol 306, no 6, December 2022, pp 1939 - 1948

Purpose

To compare the clinical features and perinatal outcomes of pregnant women with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in the pre-variant and post-variant periods.

Methods

This prospective cohort study includes pregnant women with SARS-CoV-2 who were followed-up at Ankara City Hospital between 11, March 2020 and 15, September 2021. Demographic features, clinical characteristics and pregnancy outcomes were compared between the pre-variant (n = 1416) and post-variant (n = 519) groups.

Results

The rates of severe and critical cases significantly increased in the post-variant group (9.7% vs 2%, $p < 0.001$). The rates of respiratory support (26.8% vs 7.3%, $p < 0.001$), ICU admission (12.9% vs 1.8%, $p < 0.001$) and maternal mortality (2.9% vs 0.4%, $p < 0.001$) were significantly higher in the post-variant group. A significant increase was observed for pregnancy complications in the post-variant group (45.6% vs 18.8%, $p = 0.007$). The rates of preterm delivery (26.4% vs 4.4%, $p < 0.001$) and NICU admission (34% vs 18.8%, $p < 0.001$) were significantly higher in the post-variant group. Positive, weak, statistically significant correlations were observed between the post-variant period, disease severity and maternal mortality ($r = 0.19$, $r = 0.12$ and $p < 0.001$).

Conclusion

Post-variant COVID-19 period was associated with a severe course of the disease and increased rates of adverse obstetric outcomes in pregnant patients.. (Author)

Full URL: <https://doi.org/10.1007/s00404-022-06493-5>


2022-02974

Perinatal outcomes of pregnant women with severe COVID-19 requiring extracorporeal membrane oxygenation (ECMO): a case series and literature review. Clemenza S, Zullino S, Migliavacca C, et al (2022), Archives of Gynecology and Obstetrics vol 305, no 5, May 2022, pp 1135-1142


Purpose

Pregnant women with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection have a higher risk of hospitalization, admission to intensive care unit (ICU) and invasive ventilation, and of acute respiratory distress syndrome (ARDS). In case of ARDS and critical severe coronavirus disease 2019 (COVID-19), the use of extracorporeal

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membrane oxygenation (ECMO) is recommended when other respiratory support strategies (oxygen insufflation, non-invasive ventilation [NIV], invasive ventilation through an endotracheal tube) are insufficient. However, available data on ECMO in pregnant and postpartum women with critical COVID-19 are very limited.

Methods

A case series of three critically ill pregnant women who required ECMO support for COVID-19 in pregnancy and/or in the postpartum period.

Results

The first patient tested positive for COVID-19 during the second trimester, she developed ARDS and required ECMO for 38 days. She was discharged in good general conditions and a cesarean-section [CS] at term was performed for obstetric indication. The second patient developed COVID-19-related ARDS at 28 weeks of gestation. During ECMO, she experienced a precipitous vaginal delivery at 31 weeks and 6 days of gestation. She was discharged 1 month later in good general conditions. The third patient, an obese 43-year-old woman, tested positive at 38 weeks and 2 days of gestation. Because of the worsening of clinical condition, a CS was performed, and she underwent ECMO. 143 days after the CS, she died because of sepsis and multiple organ failure (MOF). Thrombosis, hemorrhage and infections were the main complications among our patients. Neonatal outcomes have been positive.

Conclusion

ECMO should be considered a life-saving therapy for pregnant women with severe COVID-19. (Author)

Full URL: <https://doi.org/10.1007/s00404-022-06479-3>

2022-02946

Pregnancy affected by SARS-CoV-2 infection: a flash report from Michigan. Qadri F, Mariona F (2022), Journal of Maternal-Fetal and Neonatal Medicine vol 35, no 9, 2022, pp 1805-1807

The world is currently affected by the invasion of a human to human highly transmissible novel corona virus classified as SARS-CoV-2. It causes a severe acute lower respiratory tract syndrome named corona virus disease (CoVid-19). The virus is detected primarily by RT-PCR. The reproduction number (Ro) has been reported between 2.28 and 5.27]. It is beyond our objective to provide an in-depth discussion of the virus characteristics and its distinct viral clades and pathogenic behavior. On 30 January 2020 the World Health Organization (WHO) declared this outbreak a Public Health Emergency of International Concern, (PHEIC) and on 11 March 2020 WHO declared it a pandemic. There is limited information on the effect of CoVid-19 in pregnancy and the new born. We describe the details of the hospital course of the first 16 cases involving pregnant women, admitted to an urban-suburban community general hospital in Wayne County Michigan, from 26 March to 10 April 2020. At the time of this writing the Covid-19 pandemic has affected 35,291 persons in the state of Michigan (0.37%) making it the third most affected state in the USA (MDHHS). Pregnant women are believed to be at higher risk of Covid-19 infection in association with the known physiologic changes of the immune, cardiorespiratory and metabolic systems during pregnancy. (Author)

Full URL: <https://doi.org/10.1080/14767058.2020.1765334>

2022-02944

Management of covid-19: a practical guideline for maternal and newborn health care providers in Sub-Saharan Africa.

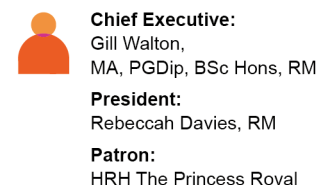
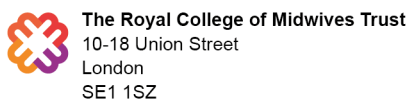
Ezenwa BN, Fajolu IB, Akinajo OR, et al (2022), Journal of Maternal-Fetal and Neonatal Medicine vol 35, no 9, 2022, pp 1789-1795

COVID-19 is a pandemic that is currently ravaging the world. Infection rate is steadily increasing in Sub-Saharan Africa. Pregnant women and their infants may suffer severe illnesses due to their lower immunity. This guideline prepares and equips clinicians working in the maternal and newborn sections in the sub-region to manage COVID-19 during pregnancy and childbirth. (Author)

Full URL: <https://doi.org/10.1080/14767058.2020.1763948>

2022-02920

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Impact of COVID-19 on perinatal care: Perceptions of family physicians in the United States. Goldstein JT, Eden AR, Taylor MK, et al (2022), *Birth* vol 49, no 4, December 2022, pp 719-727

Background

Patient-centered care is the best practice in the care of pregnant and postpartum patients. The COVID-19 pandemic prompted changes in perinatal care policies, which were often reactive, resulting in unintended consequences, many of which made the delivery of patient-centered care more difficult. This study aimed to understand the impact of the COVID-19 pandemic on perinatal health care delivery from the perspective of family physicians in the United States.

Methods

From October 5 to November 4, 2020, we surveyed mid- to late-career family physicians who provide perinatal care. We conducted descriptive analyses to measure the impact of COVID-19 on prenatal care, labor and delivery, postpartum care, patient experience, and patient volume. An immersion-crystallization approach was used to analyze qualitative data provided as open-text comments.

Results

Of the 1518 survey respondents, 1062 (69.8%) stated that they currently attend births; 595 of those elaborated about the impact of COVID-19 on perinatal care in free-text comments. Eight themes emerged related to the impact of COVID-19 on perinatal care: visitation, patient decisions, testing, personal protective equipment, care continuity, changes in care delivery, reassignment, and volume. The greatest perceived impact of COVID-19 was on patient experience.

Conclusions

Family physicians who provided perinatal care during the COVID-19 pandemic noted a considerable impact on patient experience, which particularly affected the ability to deliver patient-centered and family-centered care. Continued research is needed to understand the long-term impact of policies affecting the delivery of patient-centered perinatal care and to inform more evidence-based, proactive policies to be implemented in future pandemic or disaster situations. (Author)

Full URL: <https://doi.org/10.1111/birt.12637>

2022-02914

COVID-19 pneumonia and pregnancy; a systematic review and meta-analysis. Kasraeian M, Zare M, Vafaei H, et al (2022), *Journal of Maternal-Fetal and Neonatal Medicine* vol 35, no 9, 2022, pp 1652-1659

Background

The new SARS-CoV-2 originated from Wuhan, China is spreading rapidly worldwide. A number of SARS-CoV-2 positive pregnant women have been reported. However, more information is still needed on the pregnancy outcome and the neonates regarding COVID-19 pneumonia.

Material and Methods

A systematic search was done and nine articles on COVID-19 pneumonia and SARS-CoV-2 positive pregnant women were extracted. Some maternal-fetal characteristics were extracted to be included in the meta-analysis.

Results

The present meta-analysis was conducted on 87 SARS-CoV-2 positive pregnant women. Almost 65% of the patients reported a history of exposure to an infected person, 78% suffered from mild or moderate COVID-19, 99.9% had successful termination, 86% had cough, and 68% had fever ($p = .022$ and $p < .001$). The overall proportions of vertical transmission, still birth, and neonatal death were zero, 0.002, and 0.002, respectively ($p = 1$, $p = .86$, and $p = .89$, respectively). The means of the first- and fifth-minute Apgar scores were 8.86 and 9, respectively ($p < .001$ for both). The confounding role of history of underlying diseases with an estimated overall proportion of 33% ($p = .03$) resulted in further investigations due to sample size limitation. A natural history of COVID-19 pneumonia in the adult population was presented, as well.

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Conclusion

Currently, no evidence of vertical transmission has been suggested at least in late pregnancy. No hazards have been detected for fetuses or neonates. Although pregnant women are at an immunosuppressive state due to the physiological changes during pregnancy, most patients suffered from mild or moderate COVID-19 pneumonia with no pregnancy loss, proposing a similar pattern of the clinical characteristics of COVID-19 pneumonia to that of other adult populations. (Author)

Full URL: <https://doi.org/10.1080/14767058.2020.1763952>

2022-02913

Antenatal corticosteroids for pregnant women with COVID-19 infection and preterm prelabor rupture of membranes: a decision analysis. Zhou CG, Packer CH, Hersh AR, et al (2022), Journal of Maternal-Fetal and Neonatal Medicine vol 35, no 9, 2022, pp 1643-1651

Background

While antenatal corticosteroids are routinely used to decrease adverse neonatal outcomes following preterm delivery, corticosteroids are also associated with worse outcomes in patients with viral respiratory infections. Currently in the setting of the COVID-19 pandemic, it is unclear whether antenatal corticosteroids for infant benefit outweigh the potential harm to a pregnant woman with a COVID-19 infection.

Objective

To determine at which gestational ages administering antenatal corticosteroids is the optimal management strategy for hospitalized women with preterm prelabor rupture of membranes (PPROM) who have a COVID-19 infection.

Methods

We designed a decision-analytic model to assess the maternal and infant outcomes associated with antenatal corticosteroid administration for risk of preterm delivery following rupture of membranes in the setting of a COVID-19 infection. We used a theoretical cohort of 10,000 women at each gestational age between 24 and 32 weeks who were hospitalized with PPRM and found to be COVID-19 positive. Maternal outcomes included intensive care unit admission and death related to COVID-19 infection. The infant outcomes of interest included respiratory distress syndrome, intraventricular hemorrhage, neurodevelopmental delay, and death, and were assessed along with maternal and infant quality-adjusted life years (QALYs). Deterministic and probabilistic sensitivity analyses were used to evaluate model assumptions.

Results

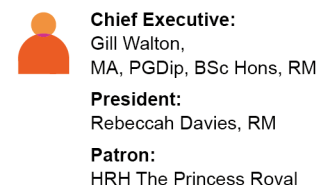
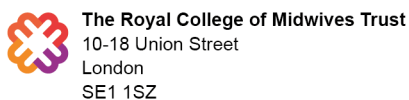
In our theoretical cohort of 10,000 women with COVID-19 infection and preterm prelabor rupture of membrane between 24 and 32 weeks, corticosteroid administration resulted in 2,200 women admitted to the ICU and 110 maternal deaths at each gestational age. No antenatal corticosteroid use resulted in 1,500 ICU admissions and 75 maternal deaths at each gestational age. Antenatal corticosteroid administration also resulted in fewer cases of respiratory distress syndrome, intraventricular hemorrhage, and infant death. Overall, we found that between 24 and 30 weeks of gestation, administering antenatal corticosteroids was the optimal management strategy as it resulted in higher combined QALYs than no corticosteroid use. For 31 and 32 weeks of gestation, antenatal corticosteroid administration resulted in lower combined QALYs. On sensitivity analyses, we found that with increasing gestational age, the probability which antenatal corticosteroids was the optimal management strategy decreased.

Conclusion

Administration of antenatal corticosteroids was an effective management strategy compared to no corticosteroid administration at gestational ages less than 31 weeks. These results provide data for clinicians to utilize when counseling pregnant patients hospitalized with PPRM and have a COVID-19 infection. (Author)

Full URL: <https://doi.org/10.1080/14767058.2020.1763951>

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2022-02910

Coronavirus disease 2019 (COVID-19) and pregnancy: a systematic review. Yang Z, Wang M, Zhu Z, et al (2022), *Journal of Maternal-Fetal and Neonatal Medicine* vol 35, no 8, 2022, pp 1619-1622

Objective

To summarize currently available evidence on maternal, fetal, and neonatal outcomes of pregnant women infected with Coronavirus Disease 2019 (COVID-19).

Material and methods

PubMed, Google Scholar, CNKI, Wanfang Data, VIP, and CBMdisc were searched for studies reporting maternal, fetal, and neonatal outcomes of women infected with COVID-19 published from 1 January 2020 to 26 March 2020. The protocol was registered with the Open Science Framework (DOI: 10.17605/OSF.IO/34ZAV).

Results

In total, 18 studies comprising 114 pregnant women were included in the review. Fever (87.5%) and cough (53.8%) were the most commonly reported symptoms, followed by fatigue (22.5%), diarrhea (8.8%), dyspnea (11.3%), sore throat (7.5%), and myalgia (16.3%). The majority of patients (91%) had cesarean delivery due to various indications. In terms of fetal and neonatal outcomes, stillbirth (1.2%), neonatal death (1.2%), preterm birth (21.3%), low birth weight (<2500 g, 5.3%), fetal distress (10.7%), and neonatal asphyxia (1.2%) were reported. There are reports of neonatal infection, but no direct evidence of intrauterine vertical transmission has been found.

Conclusions

The clinical characteristics of pregnant women with COVID-19 are similar to those of non-pregnant adults. Fetal and neonatal outcomes appear good in most cases, but available data only include pregnant women infected in their third trimesters. Further studies are needed to ascertain long-term outcomes and potential intrauterine vertical transmission. (Author)

Full URL: <https://doi.org/10.1080/14767058.2020.1759541>

2022-02785

COVID-19 in pregnancy: A UK perspective. Zayyan S, Frise C (2022), *Obstetric Medicine* vol 15, no 4, December 2022, pp 216–219

This article aims to review data collected and analysed so far over the course of the coronavirus pandemic, that examine demographic associations, patterns of disease, severity and outcomes of COVID-19 in pregnancy in the UK. (Author, edited)

2022-02781

The United Kingdom and the Netherlands maternity care responses to COVID-19: A comparative study. van den Berg LMM, Balaam M-C, Nowland R, et al (2023), *Women and Birth: Journal of the Australian College of Midwives* vol 36, no 1, February 2023, pp 127-135

Background

The national health care response to coronavirus (COVID-19) has varied between countries. The United Kingdom (UK) and the Netherlands (NL) have comparable maternity and neonatal care systems, and experienced similar numbers of COVID-19 infections, but had different organisational responses to the pandemic. Understanding why and how similarities and differences occurred in these two contexts could inform optimal care in normal circumstances, and during future crises.

Aim

To compare the UK and Dutch COVID-19 maternity and neonatal care responses in three key domains: choice of birthplace, companionship, and families in vulnerable situations.

Method

A multi-method study, including documentary analysis of national organisation policy and guidance on COVID-19, and

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interviews with national and regional stakeholders.

Findings

Both countries had an infection control focus, with less emphasis on the impact of restrictions, especially for families in vulnerable situations. Differences included care providers' fear of contracting COVID-19; the extent to which community- and personalised care was embedded in the care system before the pandemic; and how far multidisciplinary collaboration and service-user involvement were prioritised.

Conclusion

We recommend that countries should 1) make a systematic plan for crisis decision-making before a serious event occurs, and that this must include authentic service-user involvement, multidisciplinary collaboration, and protection of staff wellbeing 2) integrate women's and families' values into the maternity and neonatal care system, ensuring equitable inclusion of the most vulnerable and 3) strengthen community provision to ensure system wide resilience to future shocks from pandemics, or other unexpected large-scale events. (Author)

Full URL: <https://doi.org/10.1016/j.wombi.2022.03.010>

2022-02685

Concurrent caecum perforation in second trimester pregnant woman complicated with SARS-CoV-2 infection: a case report. Turgut ÜK, Erdemoğlu E, Kılçar M, et al (2022), Journal of Obstetrics and Gynaecology vol 42, no 6, 2022, pp 2502-2504

Case report of a 32-year-old pregnant woman presenting with SARS-CoV-2 and caecal perforation requiring urgent surgical intervention. (LDO)

2022-02684

First and second waves of SARS-COV-2 infection in the obstetric population. Sangaletti M, Gibellini D, Diani E, et al (2022), Journal of Obstetrics and Gynaecology vol 42, no 6, 2022, pp 2531-2534

Brief report exploring the impact of the first and second waves of the COVID-19 pandemic on pregnant women. (LDO)

2022-02617

Estimation of sleep problems among pregnant women during COVID-19 pandemic: a systematic review and meta-analysis. Alimoradi Z, Abdi F, Gozal D, et al (2022), BMJ Open vol 12, no 4, April 2022, e056044

Objective To estimate the sleep problems among pregnant women during the COVID-19 pandemic.

Eligibility criteria English, peer-reviewed, observational studies published between December 2019 and July 2021 which assessed and reported sleep problem prevalence using a valid and reliable measure were included.

Information sources Scopus, Medline/PubMed Central, ProQuest, ISI Web of Knowledge and Embase.

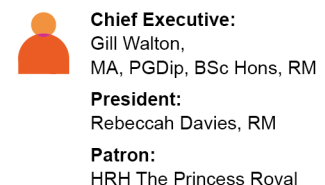
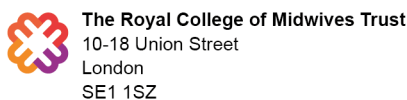
Risk of bias assessment tool The Newcastle-Ottawa Scale checklist.

Synthesis of results Prevalence of sleep problems was synthesised using STATA software V.14 using a random effects model. To assess moderator analysis, meta-regression was carried out. Funnel plot and Egger's test were used to assess publication bias. Meta-trim was used to correct probable publication bias. The jackknife method was used for sensitivity analysis.

Included studies A total of seven cross-sectional studies with 2808 participants from four countries were included.

Synthesis of results The pooled estimated prevalence of sleep problems was 56% (95% CI 23% to 88%, I²=99.81%, Tau²=0.19). Due to the probability of publication bias, the fill-and-trim method was used to correct the estimated pooled measure, which imputed four studies. The corrected results based on this method showed that pooled prevalence of sleep problems was 13% (95% CI 0% to 45%; p<0.001). Based on meta-regression, age was the only

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significant predictor of prevalence of sleep problems among pregnant women.

Limitations of evidence All studies were cross-sectional absence of assessment of sleep problems prior to COVID-19, and the outcomes of the pregnancies among those with and without sleep problems in a consistent manner are among the limitation of the current review.

Interpretation Pregnant women have experienced significant declines in sleep quality when faced with the COVID-19 pandemic. The short-term and long-term implications of such alterations in sleep on gestational and offspring outcomes are unclear and warrant further studies.

PROSPERO registration number CRD42020181644. (Author)

Full URL: <http://dx.doi.org/10.1136/bmjopen-2021-056044>

2022-02611

Knowledge and attitudes among Lebanese pregnant women and women seeking fertility treatment during the COVID-19 outbreak: a cross-sectional survey. El Taha L, Beyrouthy C, Tamim H, et al (2022), *BMJ Open* vol 12, no 3, March 2022, e057873

Objectives COVID-19 has been recognised as a global health emergency necessitating collaborative efforts to halt further disease spread. The success of public health interventions and vaccination campaigns is contingent on the knowledge and awareness level of the public. We aim to assess COVID-19 knowledge and attitudes among Lebanese pregnant women and women seeking fertility treatment.

Design Cross-sectional study using telehealth administered survey.

Setting University-affiliated tertiary care centre.

Participants The data of 402-Lebanese women pregnant or seeking fertility treatment aged 20–45 years were analysed.

Outcome measures Extent of COVID-19 general knowledge, pregnancy-specific knowledge and attitudes toward COVID-19 practices.

Results All participants reported being knowledgeable about COVID-19, 70% of which rated their knowledge as 7 or more on a numerical scale of 0–10. The mean general COVID-19 knowledge was 22.15 (SD 2.44, range 14–27) indicating a high level of knowledge. The mean pregnancy-specific COVID-19 knowledge 6.84 (SD 2.061, range 0–10) indicated poorer pregnancy-specific knowledge compared with general COVID-19 knowledge. A trend towards higher knowledge was noted with higher income status. Reproductive age women with higher pregnancy-specific knowledge had more positive attitudes toward COVID-19 pregnancy practices.

Conclusion Our findings suggest a deficiency in pregnancy-specific COVID-19 knowledge stressing the necessity for targeted public health education interventions. It highlights the need for enhancing COVID-19 pregnancy-specific awareness which can serve as a stepping stone in the success of COVID-19 vaccination campaigns and in halting further disease spread. (Author)

Full URL: <http://dx.doi.org/10.1136/bmjopen-2021-057873>

2022-02599

Preeclampsia and Severe Maternal Morbidity During the COVID-19 Pandemic: A Population-Based Cohort Study in Ontario, Canada. Snelgrove JW, Simpson AN, Sutradhar R, et al (2022), *JOGC [Journal of Obstetrics and Gynaecology Canada]* vol 44, no 7, July 2022, pp 777-784

Objective

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Significant changes to the delivery obstetrical care that occurred with the onset of the COVID-19 pandemic may be associated with higher risks of adverse maternal outcomes. We evaluated preeclampsia/HELLP (hemolysis, elevated liver enzymes and low platelets) syndrome and composite severe maternal morbidity (SMM) among pregnant people who gave birth during the COVID-19 pandemic and compared these data with those of people who gave birth before the pandemic in Ontario, Canada.

Methods

This was a population-based, retrospective cohort study using linked administrative data sets from ICES. Data on pregnant people at ≥ 20 weeks gestation who gave birth between March 15, 2020, and September 30, 2021, were compared with those of pregnant people who gave birth within the same date range for the years 2015–2019. We used multivariable logistic regression to assess the effect of the pandemic period on the odds of preeclampsia/HELLP syndrome and composite SMM, adjusting for maternal baseline characteristics and comorbidities.

Results

There were no differences between the study periods in the adjusted odds ratios (aORs) for preeclampsia/HELLP syndrome among primiparous (aOR 1.00; 95% CI 0.91–1.11) and multiparous (aOR 0.94; 95% CI 0.81–1.09) patients and no differences for composite SMM (primiparous, aOR 1.00; 95% CI 0.95–1.05; multiparous, aOR 1.01; 95% CI 0.95–1.08).

Conclusion

Adverse maternal outcomes were not higher among pregnant people who gave birth during the first 18 months of the COVID-19 pandemic in Ontario, Canada, when compared with those who gave birth before the pandemic. (Author)

Full URL: <https://doi.org/10.1016/j.ijogc.2022.03.008>

2022-02117

Exploring lived experiences of informal caregivers for pregnant women seeking scheduled antenatal care during the COVID-19 lockdown in China: A phenomenological study. Zuo Y, Luo B-R, Wang L-N, et al (2022), *Midwifery* vol 109, June 2022, 103316

Objective

We aimed to explore the lived experiences of informal caregivers for pregnant women seeking scheduled antenatal care during the early stage of China's COVID-19 lockdown and potential measures to address the challenges.

Design

This is a phenomenological qualitative study.

Setting

The study was carried out in a leading teaching hospital in Southwest China.

Participants

We recruited 15 informal caregivers for healthy pregnant women on routine antenatal visits about six months after China launched the city-wide lockdown and other control measures for COVID-19, including 10 males and 5 females with diverse demographic backgrounds.

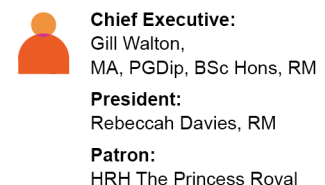
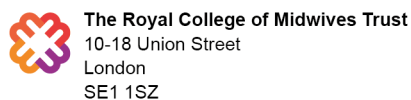
Measures and findings

The research team developed a demographic form and an interview outline with key questions, conducted semi-structured interviews with the informal caregivers, and analyzed the data using the Colazzie's method. Five themes of lived experiences were revealed, i.e., increased caregiving burdens, disruption of routines in family life, lack of accurate information and knowledge, active role adjustment, and positive attitudes and coping in a difficult time. Some caregivers reacted positively to the lockdown experience and saw it as an opportunity to rethink their lives and improve family relations.

Key conclusions

The informal caregivers experienced increased physical and psychological burdens. Strategies such as adoption of a less frequent prenatal visit schedule, use of tele-medicine technologies, and provision of accurate information and

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knowledge may help to ease the increased informal caregiving burdens. Psychological counseling, community services and disaster response policies specially targeting pregnant women and their informal caregivers may also be valuable resources.

Implications for practice

Attention should be drawn to the group of informal caregivers for pregnant women during a COVID-19 lockdown, including professional assistance delivered by nursing and other related professionals. Measures are called for to minimize exposure opportunities such as adoption of a new prenatal care schedule and tele-medicine technologies. Patient education with reliable information should be provided, preferably by nursing staff and physicians. Social support efforts including professional mental counseling may added and work with other resources such as community services and policy makers. (Author)

Full URL: <https://doi.org/10.1016/j.midw.2022.103316>

2022-02095

Influence of the COVID-19 outbreak on transportation of pregnant women in an emergency medical service system: Population-based, ORION registry. Ota K, Nishioka D, Katayama Y, et al (2022), International Journal of Gynecology & Obstetrics vol 157, no 2, May 2022, pp 366-374

Background

The coronavirus disease 2019 (COVID-19), caused by Severe Acute Respiratory Syndrome Coronavirus 2, has spread rapidly across the world.

Objective

To assess the influence of the COVID-19 pandemic on the emergency medical service (EMS) for transportation of pregnant women by ambulance.

Methods

This study was a retrospective, descriptive study using the Osaka Emergency Information Research Intelligent Operation Network system, and included pregnant women transported by ambulance in Osaka Prefecture between January 1, 2018 and December 31, 2020. The main outcome of the study was difficulty in obtaining hospital acceptance for transfer of patients (difficult-to-transfer cases). We calculated the rates of difficult-to-transfer cases using univariate and multivariate analyses.

Results

Of the 1 346 457 total patients transported to hospitals by ambulance in Osaka Prefecture during the study period, pregnant women accounted for 2586 (909, 943, and 734, in 2018, 2019, and 2020, respectively). Logistic regression analysis revealed that pregnant women were negatively associated with difficult-to-transfer cases (adjusted OR 0.36, 95% CI 0.26–0.50). Compared with 2018, 2020 was significantly associated with difficult-to-transfer cases (adjusted OR 1.27, 95% CI 1.24–1.30).

Conclusion

Pregnant women were consistently associated with reduced odds for being difficult-to-transfer cases. The COVID-19 pandemic might have influenced difficult-to-transfer cases in 2020. (Author)

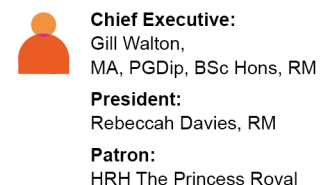
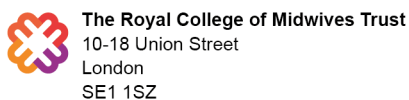
2022-02092

Establishing communication with relatives of admitted obstetrical patients with COVID-19 infection during COVID-19 pandemic: A quality improvement initiative. Rana A, Sharma KA, Kulshrestha S, et al (2022), International Journal of Gynecology & Obstetrics vol 158, no 1, July 2022, pp 121-128

Objectives

To establish communication with relatives of obstetrical patients with coronavirus disease 2019 (COVID-19) admitted

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to an isolation ward by systematic use of quality improvement tools during the COVID-19 pandemic as there were many challenges in communicating with relatives.

Methods

The study was conducted in the Department of Obstetrics and Gynecology at a tertiary-care teaching hospital based on four systematic steps of Point of Care Improvement methodology. After identifying the problem, a quality improvement team was constituted, which formed a specific aim. After root-cause analysis with fishbone tool, three Plan-Do-Study-Act (PDSA) cycles with various interventions were planned.

Results

The outcome was measured as percentage of relatives of obstetrical patients admitted to the hospital with COVID-19 who were counseled about vital patient-related information. The baseline percentage of counseling of relatives of COVID-19-positive obstetrical patients admitted to the hospital was 14% per day. After three PDSA cycles, the target of 66.5% was achieved.

Conclusion

Communication with the relatives of COVID-19-positive obstetrical patients admitted to isolation wards in the hospital could be easily streamlined without any additional resources using the principles of quality improvement during the COVID-19 pandemic.

Synopsis

SynopsisThe contents of this page will be used as part of issue TOC only. It will not be published as part of main article.

This quality improvement project establishes that communication with the relatives of isolated COVID-19-positive obstetrical patients could be easily streamlined without any additional resources. (Author)

2022-02087

Teenage motherhood in Africa: The epidemic in the COVID-19 pandemic. Molek K, Bellizzi S (2022), International Journal of Gynecology & Obstetrics vol 158, no 1, July 2022, pp 218-219

Efforts are urgently needed to increase access to sexual education and contraception, which has been proven to be effective in other contexts during the COVID-19 pandemic. (Author)

2022-02081

Maternal and neonatal outcomes of COVID-19 co-infection in pregnant women with chronic hepatitis B virus infection: A prospective cohort study. Rajan M, Sachan S, Abhinay A, et al (2022), International Journal of Gynecology & Obstetrics vol 158, no 1, July 2022, pp 221-222

Co-infection with COVID-19 in pregnant women with pre-existing HBV infection led to a higher proportion of preterm deliveries and lower mean birth weight. (Author)

2022-02002

Telehealth multidisciplinary prenatal consultation during the COVID-19 pandemic: enhancing patient care coordination while maintaining high provider satisfaction. Hargis-Villanueva A, Lai K, van Leeuwen KM, et al (2022), Journal of Maternal-Fetal and Neonatal Medicine vol 35, no 25, 2022, pp 9765-9769

Objective

Comprehensive fetal care centers address congenital anomalies by developing pre- and post-natal care plans in a multidisciplinary format. To reduce exposure during the Coronavirus Infectious Disease-2019 (COVID-19) pandemic, the Centers for Medicare & Medicaid Services (CMS) broadened access to telehealth services. We assessed provider satisfaction with the rapid transition from in-person prenatal visits to multidisciplinary consultations via telehealth as

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an adaptive response to the pandemic.

Methods

Patients referred to an urban academic fetal care center during the first 6 weeks of the COVID-19 pandemic underwent advanced imaging including fetal MRI, focused ultrasound, and fetal echocardiography. Subsequently, multidisciplinary telehealth consultations occurred with all providers attending virtually. Patients were given the option of attending the multidisciplinary telehealth consultation in a conference room in the hospital or from home. During these meetings, relevant images were reviewed with all participants via screen sharing through a secure video platform. Provider satisfaction with the telehealth paradigm was assessed using an electronic survey.

Results

Twenty-two surveys were administered with a response rate of 82%. 89% of providers were highly satisfied with the telehealth format. 72% of providers would prefer the multidisciplinary telehealth format to an in-person visit for future visits after COVID-19 restrictions are lifted. 22% of providers would leave the choice to the patient's family. One provider preferred in-person visits. Some providers noted that virtual conferences limited the ability to draw pictures, show educational materials, and provide emotional support.

Conclusion

Providers were overwhelmingly supportive of continuing multidisciplinary telehealth conferences for complex prenatal consultations, even after restrictions are lifted, which has led to the continuation of this model for the duration of the pandemic. Providers highlighted the convenience and improved care coordination across specialties. Further studies to examine the patient experience with virtual consultations are warranted. (Author)

2022-01974

Health disparities, COVID-19, and maternal and childbirth outcomes: a meta-epidemiological study of equity reporting in systematic reviews. Hartwell M, Lin V, Gatewood AC, et al (2022), Journal of Maternal-Fetal and Neonatal Medicine vol 35, no 25, 2022, pp 9622-9630

Background

Pregnant women with COVID-19 are at increased risk for adverse maternal and pregnancy outcomes, and birth complications. Given the health outcome disparities among pregnant women of racial and ethnic minorities and the reliance of medical practice on systematic reviews and meta-analyses (SRMAs)—as they are the apical component in the hierarchy of evidence in medical research—the primary objective of the study is to examine the inclusion of the equity reporting in SRMAs focused on pregnancy outcomes and COVID-19 using PROGRESS-Plus equity framework. PROGRESS represents equity measures of Place, Race, Occupation, Gender, Religion, Education, Social capital, and Socio-economic status.

Methods

We conducted a systematic search of three databases to identify SRMAs related to maternal and pregnancy outcomes related to COVID-19. We extracted whether SRMAs reported or analyzed PROGRESS-Plus components among other study characteristics.

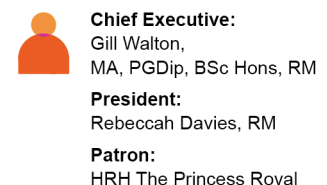
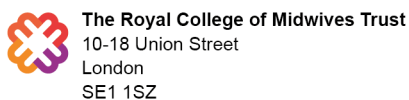
Results

Nearly 85% of SRMAs did not include any equity items to account for racial or geographic disparities. Reporting of race was absent from 95% of the studies. Place was the most common PROGRESS item and maternal age was the most common PROGRESS-Plus item reported overall.

Conclusion

When research is performed and reported in a way that fails to address disparities, the downstream repercussions may include medical care in the form of new protocol-driven hospital management, pharmacologic interventions, and other treatment options that mirror this absence in reporting. The absence of adequate reporting widens gaps in

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2022-01964

Obstetric and perinatal outcomes of pregnancies with COVID 19: a systematic review and meta-analysis. Pérez-López FR, Savirón-Cornudella R, Chedraui P, et al (2022), Journal of Maternal-Fetal and Neonatal Medicine vol 35, no 25, 2022, pp 9742-9758

Objective

This meta-analysis aimed at comparing obstetric and perinatal outcomes in laboratory-tested pregnant women for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection before delivering.

Method

We performed a comprehensive systematic review of electronic databases for studies reporting pregnant women with and without SARS-CoV-2 infection, as determined by polymerase chain reaction (PCR) before delivery, during the pandemic period published up to June 25, 2021. Results are reported as mean difference (MD) or odds ratio (OR) and their 95% confidence interval (CI).

Results

Seventeen observational studies with low to moderate risk of bias, reported on 2,769 pregnant women with a positive SARS-CoV-2 PCR test and 13,807 with a negative test. Pregnant women with a positive PCR test delivered at an earlier gestational age (MD -0.19; 95% CI -0.36 to -0.02 weeks), smoked less (OR 0.75; 95% CI 0.61-0.94) and were associated with higher odds for preeclampsia (OR 1.30; 95% CI 1.09-1.54), NICU admissions (OR 2.37; 95% CI 1.18-4.76), stillbirths (OR 2.70; 95% CI, 1.38-5.29), and perinatal mortality (OR 3.23; 95% CI 1.23-8.52). There were no significant differences between positive and negative tested women in terms of nulliparity, multiple pregnancies, gestational diabetes, route of delivery, labor induction, preterm birth, infant birth weight, 5 min Apgar scores < 7, small-for-gestational-age infants and fetal malformations. Eleven studies included neonatal PCR SARS-CoV-2 testing which was performed on 129 infants, of which 20 were positive.

Conclusion

Positive SARS-CoV-2 tested pregnant women had higher odds for preeclampsia/hypertensive disorders of pregnancy, NICU admissions, stillbirths and perinatal mortality. (Author)

2022-01961

Antenatal classes [written answer]. Scottish Parliament (2022), Official Report Written question S6W-07397, 17 March 2022

Maree Todd responds to a written question asked by Monica Lennon to the Scottish Government regarding which NHS boards are currently providing in-person antenatal classes. This question is asked further to answer S6W-06381 by Hamza Yousaf on 2 March 2022. (LDO)

Full URL: <https://archive2021.parliament.scot/parliamentarybusiness/28877.aspx?SearchType=Advance&ReferenceNumbers=S6W-07397>

2022-01937

Antenatal classes [written answer]. Scottish Parliament (2022), Official Report Written question S6W-07219, 10 March 2022

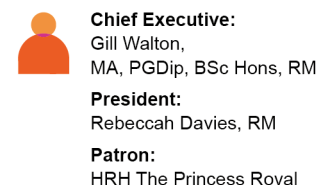
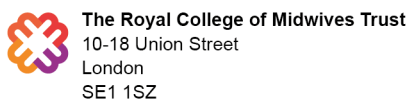
Humza Yousaf responds to a written question asked by Monica Lennon to the Scottish Government regarding the date by which face-to-face antenatal classes that are run by NHS Scotland will resume, in light of the reported resumption of private classes. (MB)

Full URL: <https://archive2021.parliament.scot/parliamentarybusiness/28877.aspx?SearchType=Advance&ReferenceNumbers=S6W-07219>

2022-01936

Antenatal classes [written answer]. Scottish Parliament (2022), Official Report Written question S6W-07397, 17 March 2022

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Maree Todd responds to a written question asked by Monica Lennon to the Scottish Government further to the answer to question S6W-06381 by Humza Yousaf on 2 March 2022, regarding which NHS boards are currently providing in-person antenatal classes. (MB)

Full URL: <https://archive2021.parliament.scot/parliamentarybusiness/28877.aspx?SearchType=Advance&ReferenceNumbers=S6W-07397>

2022-01925

SARS-CoV-2 Placentitis and Intraparenchymal Thrombohematomas Among COVID-19 Infections in Pregnancy. Huynh A, Sehn JK, Goldfarb IT, et al (2022), JAMA Network Open vol 5, no 3, March 2022, e225345

This cases series examines SARS-CoV-2 placentitis and intraparenchymal thrombohematomas among COVID-19 infections during pregnancy. (Author)

Full URL: <https://doi.org/10.1001/jamanetworkopen.2022.5345>

2022-01923

COVID-19 Cases and Disease Severity in Pregnancy and Neonatal Positivity Associated With Delta (B.1.617.2) and Omicron (B.1.1.529) Variant Predominance. Adhikari EH, Macdonald L, SoRelle JA, et al (2022), JAMA (Journal of the American Medical Association) vol 327, no 15, 19 April 2022, pp 1500-1502

This study examines infections, illness severity, vaccinations, and early neonatal infections among obstetric patients during the pre-Delta, Delta, and Omicron periods of the COVID-19 pandemic. (Author)

Full URL: <https://doi.org/10.1001/jama.2022.4356>

2022-01705

Knowledge, attitude and practices of pregnant women related to COVID-19 infection: A cross-sectional survey in seven countries from the Global Network for Women's and Children's Health. Naqvi F, Naqvi S, Billah SM, et al (2022), BJOG: An International Journal of Obstetrics and Gynaecology vol 129, no 8, July 2022, pp 1289-1297

Objective

We sought to understand knowledge, attitudes and practices (KAP) regarding COVID-19 in pregnant women in seven low and middle-income countries (LMIC).

Design

Population-based prospective, observational study.

Settings

Study sites in DRC, Kenya, Zambia, Bangladesh, India (two sites), Pakistan and Guatemala.

Population and sample

Pregnant women in the Global Network's Maternal and Neonatal Health Registry (MNHR).

Methods

A KAP questionnaire was administered in face-to-face interviews with pregnant women from September 2020 through October 2021 in the MNHR.

Main outcome measures

KAP regarding COVID-19 during pregnancy.

Results

In all, 25 260 women completed the survey. Overall, 56.8% of women named ≥ 3 COVID-19 symptoms, 34.3% knew ≥ 2 transmission modes, 51.3% knew ≥ 3 preventive measures and 79.7% named at least one high-risk condition. Due to COVID-19 exposure concerns, 23.8% had avoided prenatal care and 7.5% planned to avoid hospital delivery. Over half

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the women in the Guatemalan site and 40% in the Pakistan site reduced care seeking due to COVID-19 exposure concerns. Of the women, 24.0% were afraid of getting COVID-19 from healthcare providers. Overall, 63.3% reported wearing a mask and 29.1% planned to stay at home to reduce COVID-19 exposure risk.

Conclusions

We found a decrease in planned antenatal and delivery care use due to COVID-19 concerns. The clinical implications of potential decreases in care are unclear, but decline in essential healthcare utilisation during pregnancy and delivery could pose challenges for maternal and newborn health. More research is needed to address the impact of COVID-19 on routine pregnancy and delivery care. (Author)

Full URL: <https://doi.org/10.1111/1471-0528.17122>

2022-01578

Management and implications of severe COVID-19 in pregnancy in the UK: data from the UK Obstetric Surveillance

System national cohort. Vousden N, Ramakrishnan R, Bunch K, et al (2022), *Acta Obstetrica et Gynecologica Scandinavica* vol 101, no 4, April 2022, pp 461-470

Introduction

There is a lack of population level data on risk factors and impact of severe COVID-19 in pregnancy. The aims of this study were to determine the characteristics, and maternal and perinatal outcomes associated with severe COVID-19 in pregnancy compared with those with mild and moderate COVID-19 and to explore the impact of timing of birth.

Material and methods

This was a secondary analysis of a national, prospective cohort study. All pregnant women admitted to hospital in the UK with symptomatic SARS-CoV-2 from March 1, 2020 to October 31, 2021 were included. The severity of maternal infection (need for high flow or invasive ventilation, intensive care admission or died), pregnancy and perinatal outcomes, and the impact of timing of birth were analyzed using multivariable logistic regression.

Results

Of 4436 pregnant women, 13.9% (n = 616) had severe infection. Women with severe infection were more likely to be aged ≥ 30 years (adjusted odds ratio [aOR] aged 30–39 1.48, 95% confidence interval [CI] 1.20–1.83), be overweight or obese (aOR 1.73, 95% CI 1.34–2.25 and aOR 2.52 95% CI 1.97–3.23, respectively), be of mixed ethnicity (aOR 1.93, 95% CI 1.17–3.21) or have gestational diabetes (aOR 1.43, 95% CI 1.09–1.87) compared with those with mild or moderate infection. Women with severe infection were more likely to have a pre-labor cesarean birth (aOR 8.84, 95% CI 6.61–11.83), a very or extreme preterm birth (28–31+ weeks' gestation, aOR 18.97, 95% CI 7.78–14.85; <28 weeks' gestation, aOR 12.35, 95% CI 6.34–24.05) and their babies were more likely to be stillborn (aOR 2.51, 95% CI 1.35–4.66) or admitted to a neonatal unit (aOR 11.61, 95% CI 9.28–14.52). Of 112 women with severe infection who were discharged and gave birth at a later admission, the majority gave birth ≥ 36 weeks (85.7%), noting that three women in this group (2.7%) had a stillbirth.

Conclusions

Severe COVID-19 in pregnancy increases the risk of adverse outcomes. Information to promote uptake of vaccination should specifically target those at greatest risk of severe outcomes. Decisions about timing of birth should be informed by multidisciplinary team discussion; however, our data suggest that women with severe infection who do not require early delivery have mostly good outcomes but that those with severe infection at term may warrant rapid delivery. (Author)

Full URL: <https://doi.org/10.1111/aogs.14329>

2022-01480

Adverse Effects of COVID-19 on Perinatal Outcomes Globally. Callister LC (2022), *MCN - American Journal of Maternal/Child*

Nursing vol 47, no 2, March/April 2022, p 110

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The COVID-19 pandemic has adversely affected outcomes for childbearing women and their babies around the globe, especially in low resource, low-to-middle income countries. Our global health and nursing expert, Dr. Callister, reviews some of the most recently published articles on the impact of COVID-19 on this vulnerable population.

(Author)

2022-01460

Changes in rates of adverse pregnancy outcomes during the COVID-19 pandemic: a cross-sectional study in the United States, 2019–2020. Simeone RM, Downing KF, Wallace B, et al (2022), *Journal of Perinatology* vol 42, no 5, May 2022, pp 617-623

Objective

Our objective was to assess differences in pregnancy outcomes during the COVID-19 pandemic compared to the previous year.

Study design

In a cross-sectional study of delivery hospitalizations in the Premier Healthcare Database Special COVID-19 Release, we assessed differences in selected maternal and pregnancy outcomes occurring April–December in 2019 and 2020 in the United States.

Result

Among 663,620 deliveries occurring in 2019 and 614,093 deliveries occurring in 2020, we observed an increase in in-hospital maternal death from 2019 to 2020, which was no longer statistically significant after excluding deliveries with a COVID-19 diagnosis. Intensive care unit admission and preterm birth decreased from 2019 to 2020. There was no difference in the prevalence of most other outcomes examined.

Conclusion

The full impact of the COVID-19 pandemic on maternal and pregnancy outcomes remains to be understood. Most outcomes investigated experienced minimal change from 2019 to 2020. (Author)

Full URL: <https://doi.org/10.1038/s41372-022-01327-3>

2022-01385

A Mixed-Methods Study of Experiences During Pregnancy Among Black Women During the COVID-19 Pandemic.

Dove-Medows E, Davis J, McCracken L, et al (2022), *The Journal of Perinatal and Neonatal Nursing* vol 36, no 2, April/June 2022, pp 161-172

Pregnant women experienced disruptions in their prenatal care during the coronavirus disease-2019 (COVID-19) pandemic. While there is emerging research about the impact of COVID-19 on experiences of pregnancy, the majority of studies that have reported on prenatal care and birth during COVID-19 have not incorporated the first-person accounts of Black women. The purpose of this mixed-methods study was to explore the perspectives of Black women on prenatal care, labor, and birth during the pandemic. A total of 33 participants completed questionnaires. Fourteen of these 33 women and an additional 2 participated in qualitative interviews. Descriptive statistics and a mixed-methods analysis were employed. Participants expressed disappointment about disruptions in their experiences of pregnancy including the way their prenatal care was experienced, cancellation of planned “rites of passage,” and visitor policy restrictions during and after the birth. Forty-five percent of participants reported being worried about getting COVID-19 and (61%) about their infant getting COVID-19. Many participants experienced a sense of loss that may permeate through other aspects of their lives. Providing extra support and points of contact can help lessen feelings of isolation during the pandemic and can also offer more explanation for rapidly changing policies and procedures. (Author)

2022-01352

Tailoring the response to COVID-19: experiences of an inner city maternity unit with a virtual patient surveillance approach.

Elsmore A, Redjepova O, Wright J, et al (2022), *Journal of Obstetrics and Gynaecology* vol 42, no 6, 2022, pp 1715-1721

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This study outlines the characteristics and outcomes of pregnant women with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). We present the success of our 'COVID Surveillance Team' – a dedicated team of midwives and medics that regularly contact patients, identifying early any need for escalation of care. Data were collected prospectively from March to September 2020. Patients are followed up by our team for 14 days following diagnosis, via telephone. Maternal and neonatal outcomes were studied. Fifty-five women were diagnosed with COVID-19. 39/55 (70.9%) were of BAME background. 10/55 (18%) had medical comorbidities. 35/55 (63.6%) were diagnosed in the 3rd trimester, 7/55 (12.7%) were postnatal. Three women (5.4%) required critical care unit admission. One was transferred to a tertiary centre for extra-corporeal membrane oxygenation (ECMO), one patient died. Of the 43 deliveries, 28 (65.1%) underwent caesarean section. 11/45 (24.4%) of babies were born preterm. Eight babies were tested for COVID-19, one was positive. Our study demonstrates most pregnant women suffer mild illness, with no adverse outcomes for mother or neonate. We highlight the success of our COVID surveillance team, that should be considered best practice and consideration should be given for adoption by other maternity units to enhance patient safety.

Impact Statement

What is already known on this subject? Many studies present maternal and neonatal characteristics and outcomes of COVID-19 infection in the pregnant population, demonstrating most patients suffer mild disease with minimal adverse outcomes.

What do the results of this study add? We highlight the important work of our COVID surveillance team, and the positive impact it has had on the wellbeing and safety of our women. We believe we are the first maternity unit in the UK to adopt and report on a virtual patient surveillance approach supporting our patients and leading to increased patient safety.

What are the implications of these findings for clinical practice and/or further research? Our surveillance team has proved very successful and has been described as exemplar by NHS England and promoted as best practice. This approach could be adopted by other units, within the UK and further afield, for the benefit of women's health and safety. The team has shared their guidance and standard operating procedure with maternity units across the UK.

(Author)

2022-01298

Indonesian midwives' perspectives on changes in the provision of maternity care during the COVID-19 pandemic: A qualitative study. Hazfiarini A, Zahroh RI, Akter S, et al (2022), *Midwifery* vol 108, May 2022, 103291

Objective

To explore how COVID-19 influenced the provision of high-quality maternity care in Indonesia.

Design and methods

A qualitative descriptive study using in-depth interviews was undertaken. Thematic analysis was used to analyse data, and behaviour change frameworks (Theoretical Domain Framework (TDF) and Capability, Opportunity, and Motivation (COM-B)) were used to identify and map facilitators and barriers influencing maternity care provision during the COVID-19 pandemic.

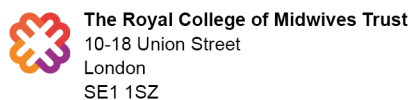
Setting and participants

Fifteen midwives working in community maternity care facilities in Surabaya and Mataram, Indonesia were included. Surabaya is in western Indonesia, with around 56,000 births per year and a population of around 3 million. Mataram is in eastern Indonesia, with around 7,000 births per year and a population of around 500,000.

Findings

The main changes to maternity care provision during the COVID-19 pandemic were reduced frequency of antenatal and postpartum care visits, reduced support for women, including unavailability of maternity care and reduced

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number of antenatal care and labour companions, changes in location of provision of care, and public health changes related to COVID-19. The main factors influencing the provision of high-quality maternity care during the COVID-19 pandemic were behavioural regulation, professional role and identity, and environmental context and resources.

Key conclusions and implications for practice

Maternity care provision underwent substantial changes during the COVID-19 pandemic in Indonesia. Findings from this study can contribute to better understanding of how maternity care provision changed during the pandemic, and how positive changes can be reinforced, and negative changes can be addressed. (Author)

Full URL: <https://doi.org/10.1016/j.midw.2022.103291>

2022-01284

Increasing oxygen requirements and disease severity in pregnant individuals with the SARS-CoV-2 Delta variant. Eid J, Abdelwahab M, Caplan M, et al (2022), American Journal of Obstetrics & Gynecology MFM vol 4, no 3, May 2022, 100612

Correspondence piece aiming to determine whether the Delta variant of SARS-CoV-2 is associated with increased oxygen requirement and disease severity among pregnant women. Results suggest that patients with the Delta variant were more likely to require oxygen supplementation, have more severe disease and require admission to the intensive care unit. (LDO)

Full URL: <https://doi.org/10.1016/j.ajogmf.2022.100612>

2022-01276

Pregnancy: Employment [written answer]. House of Commons (2022), Hansard Written question 117055, 2 February 2022

Maria Caulfield responds to a written question from Annelise Dodds to the Secretary of State for Health and Social Care, regarding whether his Department intends to publish guidance for (a) employers and (b) pregnant workers on new and expectant mothers in the workplace during covid-19. (MB)

Full URL: <https://questions-statements.parliament.uk/written-questions/detail/2022-02-02/117055>

2022-01142

Impacts and effects of COVID-19 infection in pregnancy. Sunder A, Varghese B, Darwish B, et al (2022), Saudi Medical Journal vol 43, no 1, January 2022, pp 67-74

Objectives: To explore the trimester wise significance of the primary outcome in pregnant women during coronavirus disease-19 (COVID-19) pandemic.

Methods: Retrospective observational study of pregnant women who were infected with COVID-19 from April 2020 until March 2021 at Bahrain Defense Force Hospital, Riffa, Bahrain. The study focused on the effects in relation to gestational age (GA), association with variables, severity, and treatment. A p-value of ≤ 0.05 was considered significant.

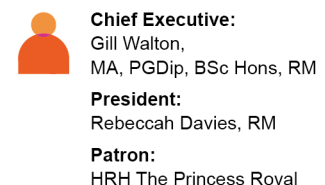
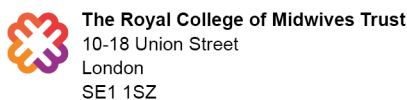
Results: During the study period, 74 COVID-19 cases were identified from the recorded 2944 pregnant women. The mean GA at diagnosis was 33.5 ± 12.2 weeks, and the mean GA at birth was 38.4 ± 1.8 weeks. Analysis of the obstetric complications revealed fetal growth restriction (FGR) had a p-value of < 0.001 . According to the trimester wise analysis, between the gestational period at diagnosis and the outcome of pregnancy, significant p-value of < 0.01 was found in miscarriage. There were no significant associations found in GA at diagnosis and delivery, complications in relation to maternal age and body mass index, and no maternal morbidities or mortalities.

Conclusion: In our study, FGR and miscarriage were the identified complications. However, the maternal and neonatal end result of COVID-19 was satisfactory. (Author)

Full URL: <https://doi.org/10.15537/smj.2022.43.1.20210694>

2022-01110

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Home use of both pills for early medical abortion (EMA) up to 10 weeks gestation: summary of consultation

responses. Department of Health and Social Care (2022), 10 March 2022

Presents the outcome of a consultation to ascertain opinion on whether to make permanent a temporary approval put in place by the Government during the coronavirus pandemic, to return to the pre-pandemic arrangements, or to extend the temporary approval by 12 months. The temporary approval allowed women in England to take both pills for an early medical abortion (EMA) in their own homes, up to 10 weeks' gestation, following a consultation with a clinician via the telephone or online, without the need to first attend a hospital or clinic. 70% of respondents indicated that they wish the temporary approval to end immediately, however some Health professional organisations, abortion providers and some other organisations supported the temporary measure becoming permanent. (JSM)

Full URL: <https://www.gov.uk/government/consultations/home-use-of-both-pills-for-early-medical-abortion/outcome/home-use-of-both-pills-for-early-medical-abortion-ema-up-to-10-weeks-gestation-summary-of-consultation-responses>

2022-01104

COVID-19 in pregnancy—what study designs can we use to assess the risk of congenital anomalies in relation to COVID-19 disease, treatment and vaccination?. Dolk H, Damase-Michel C, Morris JK, et al (2022), Paediatric and Perinatal Epidemiology vol 36, no 4, July 2022, pp 493-507

Background

The COVID-19 pandemic has accelerated pregnancy outcome research, but little attention has been given specifically to the risk of congenital anomalies (CA) and first trimester exposures.

Objectives

We reviewed the main data sources and study designs used internationally, particularly in Europe, for CA research, and their strengths and limitations for investigating COVID-19 disease, medications and vaccines.

Population

We classify research designs based on four data sources: a) spontaneous adverse event reporting, where study subjects are positive for both exposure and outcome, b) pregnancy exposure registries, where study subjects are positive for exposure, c) congenital anomaly registries, where study subjects are positive for outcome and d) population healthcare data where the entire population of births is included, irrespective of exposure and outcome.

Study Design

Each data source allows different study designs, including case series, exposed pregnancy cohorts (with external comparator), ecological studies, case-control studies and population cohort studies (with internal comparator).

Methods

The quality of data sources for CA studies is reviewed in relation to criteria including diagnostic accuracy of CA data, size of study population, inclusion of terminations of pregnancy for foetal anomaly, inclusion of first trimester COVID-19-related exposures and use of an internal comparator group. Multinational collaboration models are reviewed.

Results

Pregnancy exposure registries have been the main design for COVID-19 pregnancy studies, but lack detail regarding first trimester exposures relevant to CA, or a suitable comparator group. CA registries present opportunities for improving diagnostic accuracy in COVID-19 research, especially when linked to other data sources. Availability of inpatient hospital medication use in population healthcare data is limited. More use of ongoing mother-baby linkage systems would improve research efficiency. Multinational collaboration delivers statistical power.

Conclusions

Challenges and opportunities exist to improve research on CA in relation to the COVID-19 pandemic and future

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2022-00975

Adverse perinatal outcomes in a large United States birth cohort during the COVID-19 pandemic. Litman EA, Yin Y, Nelson SJ, et al (2022), American Journal of Obstetrics & Gynecology MFM vol 4, no 3, May 2022, 100577

BACKGROUND

The impact of coronavirus disease 2019 (COVID-19) on adverse perinatal outcomes remains unclear.

OBJECTIVE

This study aimed to investigate whether COVID-19 is associated with adverse perinatal outcomes in a large national dataset and to examine the rates of adverse outcomes during the pandemic compared with the rates of adverse outcomes during the prepandemic period.

STUDY DESIGN

This observational cohort study included 683,905 patients, between the ages of 12 and 50, hospitalized for childbirth and abortion between January 1, 2019, and May 31, 2021. During the prepandemic period, 271,444 women were hospitalized for childbirth. During the pandemic, 308,532 women were hospitalized for childbirth, and 2708 women had COVID-19. The associations between COVID-19 and inhospital adverse perinatal outcomes were examined using propensity score-adjusted logistic regression.

RESULTS

Women with COVID-19 were more likely to experience both early and late preterm birth (adjusted odds ratios, 1.38 [95% confidence interval, 1.1–1.7] and 1.62 [95% confidence interval, 1.3–1.7], respectively), preeclampsia (adjusted odds ratio, 1.2 [95% confidence interval, 1.0–1.4]), disseminated intravascular coagulopathy (adjusted odds ratio, 1.57 [95% confidence interval, 1.1–2.2]), pulmonary edema (adjusted odds ratio, 2.7 [95% confidence interval, 1.1–6.3]), and need for mechanical ventilation (adjusted odds ratio, 8.1 [95% confidence interval, 3.8–17.3]) than women without COVID-19. There was no significant difference in the prevalence of stillbirth among women with COVID-19 (16/2708) and women without COVID-19 (174/39,562) ($P=.257$). There was no difference in adverse outcomes among women who delivered during the pandemic vs prepandemic period. Combined inhospital mortality was significantly higher for women with COVID-19 (147 [95% confidence interval, 3.0–292.0] vs 2.5 [95% confidence interval, 0.0–7.5] deaths per 100,000 women). Women diagnosed with COVID-19 within 30 days before hospitalization were more likely to experience early preterm birth, placental abruption, and mechanical ventilation than women diagnosed with COVID-19 >30 days before hospitalization for childbirth (4.0% vs 2.4% for early preterm birth [adjusted odds ratio, 1.7; 95% confidence interval, 1.1–2.7]; 2.2% vs 1.2% for placental abruption [adjusted odds ratio, 1.86; 95% confidence interval, 1.0–3.4]; and 0.9% vs 0.1% for mechanical ventilation [adjusted odds ratio, 13.7; 95% confidence interval, 1.8–107.2]).

CONCLUSION

Women with COVID-19 had a higher prevalence of adverse perinatal outcomes and increased in-hospital mortality, with the highest risk occurring when the diagnosis was within 30 days of hospitalization, raising the possibility of a high-risk period. (Author)

Full URL: <https://doi.org/10.1016/j.ajogmf.2022.100577>

2022-00954

Domestic violence: an invisible pandemic. Dey T, Thakar R (2022), The Obstetrician and Gynaecologist vol 24, no 2, April 2022, pp 90-92

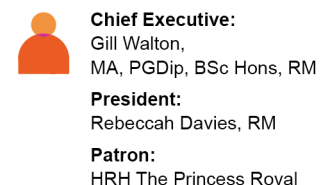
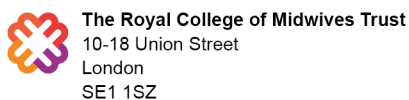
Commentary on the increase in domestic violence during the COVID-19 pandemic and the ways in which obstetricians, midwives and allied health professionals can help with early recognition and referral. (LDO)

Full URL: <https://doi.org/10.1111/tog.12798>

2022-00724

Coronavirus: Screening [written answer]. House of Commons (2022), Hansard Written question 131322, 28 February 2022

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Maggie Throup responds to a written question from Daisy Cooper to the Secretary of State for Health and Social Care, regarding what assessment his Department has made of the impact of ending free-of-charge covid-19 lateral flow tests on pregnant women. (JSM)

Full URL: <https://questions-statements.parliament.uk/written-questions/detail/2022-02-28/131322>

2022-00702

Feeding during therapeutic hypothermia is safe and may improve outcomes in newborns with perinatal asphyxia.

Wang X, Chen X, Zhang K, et al (2022), Journal of Maternal-Fetal and Neonatal Medicine 13 February 2022, online

Background: The Coronavirus disease 2019 (COVID-19) pandemic has become worldwide, posing particularly severe challenges. Pregnancy brings changes that might make individuals more vulnerable to this viral infection. To date, the impact of COVID-19 infection on pregnancy outcomes remains controversial.

Method: We performed a meta-analysis to address the impact of COVID-19 infection on pregnancy outcomes. We searched the PubMed and China National Knowledge infrastructure (CNKI) databases for related articles. The odds ratio (OR) corresponding to the 95% confidence interval (95% CI) was used to define the impact of INFECTION and severity of COVID-19 on pregnancy outcomes. The statistical heterogeneity among studies was batched with the Q-test and I2 statistics.

Results: We collected 38 studies including 127,805 pregnancy women. Our meta-analysis revealed that pregnant women with COVID-19 have been linked to an increased risk of premature birth (OR = 1.66, 95% CI = 1.41–1.96), stillbirth (OR = 1.98, 95% CI = 1.22–3.21), pre-eclampsia (OR = 1.46, 95% CI = 1.18–1.80), and PROM (OR = 1.39, 95% CI = 1.07–1.81).

Conclusions: Our meta-analysis showed that infection with COVID-19 increases the risk of preterm birth, stillbirth, pre-eclampsia, and PROM. Screening and early care for pregnant women to intervene with COVID-19 is important, given the increased risk of adverse pregnancy outcomes. (Author)

2022-00699

Remdesivir use in pregnancy during the SARS-CoV-2 pandemic. Gutierrez R, Mendez-Figueroa H, Biebighauser JG, et al (2022), Journal of Maternal-Fetal and Neonatal Medicine vol 35, no 25, 2022, pp 9445-9451

Objective

To ascertain the composite maternal and neonatal outcomes in pregnant individuals with moderate, severe, or critical coronavirus disease 2019 (COVID-19) treated with remdesivir.

Materials and methods

This is a secondary analysis of the COVID in Pregnancy Registry in Houston, Texas. Women were included if they met the criteria of moderate, severe or critical COVID-19 illness. Composite adverse maternal outcome was defined as any of the following outcomes: placental abruption, pregnancy-related hypertension, chorioamnionitis, stroke, delivery with estimated blood loss >1000 mL, diagnosis of pulmonary embolism or deep venous thromboembolism, or maternal death. Composite adverse neonatal outcome was defined as any of the following: Apgar score ≤3 at 5 min, arterial cord pH <7.0, positive SAR-CoV-2 test, intraventricular hemorrhage, periventricular leukomalacia, stillbirth, or neonatal death. Comparative analyses between participants receiving remdesivir versus those not exposed were performed.

Results

A total of 994 patients were diagnosed with COVID-19 infection. Of these, 95 (9.6%) met criteria for moderate, severe, or critical disease. Forty-one percent of these patients (n = 39) received remdesivir. Baseline demographic characteristics were not different between groups. No patients reported an allergic reaction with the administration of remdesivir; however, 16.7% of the patients had the medication discontinued due to transaminitis. Patients receiving

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the drug were more likely to have a longer illness duration on admission, more likely to require oxygen support on arrival and have a longer hospital stay.

Conclusions

Remdesivir appears to be safe, well tolerated within our cohort with no cases of recorded adverse reaction. (Author)

2022-00698

Symptomatic versus asymptomatic COVID-19: does it impact placental vasculopathy?. Ramey-Collier K, Craig AM, Hall A, et al (2022), Journal of Maternal-Fetal and Neonatal Medicine vol 35, no 25, 2022, pp 9460-9462

This study sought to assess the impact of COVID-19 on placental vasculature in the context of maternal symptomatology – comparing asymptomatic to symptomatic pregnant patients – and disease severity – comparing pregnant patients with mild, moderate, severe, and critical COVID-19 infection. PCR-confirmed COVID-19 positive pregnant patients in a single health system who delivered between 3/2020-5/2021 included. All patients had positive COVID test and delivered during the study period. Primary outcome was incidence of any vascular malperfusion on placental pathology. Secondary outcomes were FVM and MVM on placental pathology. Placental pathology compared between symptomatic (sCOVID) and asymptomatic (aCOVID) patients. Secondary analysis of symptomatic patients, comparing placental pathology between mild disease (mCOVID) and worse disease (moderate, severe, or critical-defined by 2020 NIH guidelines) (dCOVID), also performed. Of 112 patients, 53 (47%) had symptoms. Twenty-seven (24.1%) patients had evidence of vascular malperfusion; 26 (23.2%) had MVM. When comparing aCOVID and sCOVID patients, no difference in rate of vascular malperfusion identified, nor any differences in rates of FVM or MVM. Among sCOVID patients (n = 53), 39 (74%) had mCOVID and 14 (26%) had dCOVID (moderate n = 4, severe n = 9, critical n = 1). Patients with dCOVID had earlier median delivery GA (37.4wks vs 39.2wks, p = .03). No difference in latency from diagnosis to delivery seen between mCOVID and dCOVID groups (4.4 vs 3.0wks, p = .96). Twelve (30.8%) patients had vascular malperfusion on pathology, all had mCOVID (p = .02). Eleven (28.2%) mCOVID patients had MVM; no dCOVID patients had evidence of vascular malperfusion (p = .03). No difference in FVM was found between cohorts. Symptomatic COVID-19 infection did not impact placental vasculature differently than asymptomatic infection, even when stratifying by trimester of infection. Among pregnant patients with symptomatic COVID-19, mild disease was associated with placental vascular changes on the maternal side while severe disease was not. Further studies are needed to understand the implications of these findings. (Author)

2022-00692

Maternity leave: Coronavirus [written answer]. Northern Ireland Assembly (2022), Hansard Written question AQW 29593/17-22, 10 February 2022

The Minister for the Economy responds to a written question asked by Mr Harry Harvey, regarding whether he will outline the COVID-19 risk assessment policy in relation to maternity leave guidelines. (LDO)

Full URL: <http://aims.niassembly.gov.uk/questions/printquestionssummary.aspx?docid=367579>

2022-00689

Antenatal classes [written answer]. Scottish Parliament (2022), Official Report Written question S6W-06381, 9 February 2022


Humza Yousaf responds to a written question asked by Monica Lennon to the Scottish Government regarding the date by which NHS Scotland will resume face-to-face antenatal classes, in light of the reported resumption of private classes. (LDO)

Full URL: <https://archive2021.parliament.scot/parliamentarybusiness/28877.aspx?SearchType=Advance&ReferenceNumbers=S6W-06381>

2022-00686

Comparison of Sexually Transmitted Infections and Adverse Perinatal Outcomes in Underserved Pregnant Patients Before vs During the COVID-19 Pandemic in Texas. Stafford IA, Coselli JO, Wilson DF, et al (2022), JAMA Network Open vol 5, no

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This cohort study assesses the rates of sexually transmitted infections (STI) and associated adverse perinatal outcomes among underserved pregnant patients during the COVID-19 pandemic in a public health system in Southeastern Texas. (Author)

Full URL: <https://doi.org/10.1001/jamanetworkopen.2022.0568>

2022-00657

Severity of maternal infection and perinatal outcomes during periods of SARS-CoV-2 wildtype, alpha, and delta variant dominance in the UK: prospective cohort study. Vousden N, Ramakrishnan R, Bunch K, et al (2022), *BMJ Medicine* 28 February 2022, online

Objective To compare the severity of maternal infection and perinatal outcomes during periods in which wildtype, alpha variant, and delta variant of SARS-CoV-2 were dominant in the UK.

Design Prospective cohort study.

Setting 194 obstetric units across the UK, during the following periods: between 1 March and 30 November 2020 (wildtype dominance), between 1 December 2020 and 15 May 2021 (alpha variant dominance), and between 16 May and 31 October 2021 (delta variant dominance).

Participants 4436 pregnant women admitted to hospital with covid-19 related symptoms.

Main outcome measures Moderate to severe maternal SARS-CoV-2 infection (indicated by any of the following: oxygen saturation <95% on admission, need for oxygen treatment, evidence of pneumonia on imaging, admission to intensive care, or maternal death), and pregnancy and perinatal outcomes (including mode and gestation of birth, stillbirth, live birth, admission to neonatal intensive care, and neonatal death).

Results 1387, 1613, and 1436 pregnant women were admitted to hospital with covid-19 related symptoms during the wildtype, alpha, and delta dominance periods, respectively; of these women, 340, 585, and 614 had moderate to severe infection, respectively. The proportion of pregnant women admitted with moderate to severe infection increased during the subsequent alpha and delta dominance periods, compared with the wildtype dominance period (wildtype 24.5% v alpha 36.2% (adjusted odds ratio 1.98, 95% confidence interval 1.66% to 2.37%); wildtype 24.5% v delta 42.8% (2.66, 2.21 to 3.20)). Compared with the wildtype dominance period, women admitted during the alpha dominance period were significantly more likely to have pneumonia, require respiratory support, and be admitted to intensive care; these three risks were even greater during the delta dominance period (wildtype v delta: pneumonia, adjusted odds ratio 2.52, 95% confidence interval 2.06 to 3.09; respiratory support, 1.90, 1.52 to 2.37; and intensive care, 2.71, 2.06 to 3.56). Of 1761 women whose vaccination status was known, 38 (2.2%) had one dose and 16 (1%) had two doses before their diagnosis (of whom 14 (88%) had mild infection). The proportion of women receiving drug treatment for SARS-CoV-2 management was low, but did increase between the wildtype dominance period and the alpha and delta dominance periods (10.4% wildtype v 14.9% alpha (2.74, 2.08 to 3.60); 10.4% wildtype v 13.6% delta (2.54, 1.90 to 3.38)).

Conclusions While limited by the absence of variant sequencing data, these findings suggest that during the periods when the alpha and delta variants of SARS-CoV-2 were dominant, covid-19 was associated with more severe maternal infection and worse pregnancy outcomes than during the wildtype dominance period. Most women admitted with SARS-CoV-2 related symptoms were unvaccinated. Urgent action to prioritise vaccine uptake in pregnancy is essential.

Study registration ISRCTN40092247. (Author)

Full URL: <https://bmjmedicine.bmj.com/content/1/1/e000053>

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2022-00654

Covid-19: Severe infection in pregnancy significantly increases risks, study shows. Iacobucci G (2022), *BMJ* vol 376, 24 February 2022, o480

Severe covid-19 infection in pregnant women significantly increases the risk of harmful outcomes for mothers and babies, a study (1) has found.

1. Vousden N et al. *Acta Obstetrica et Gynecologica Scandinavica*, 25 February 2022, online.

<https://doi.org/10.1111/aogs.14329>.

(Author, edited)

Full URL: <https://doi.org/10.1136/bmj.o480>

2022-00641

COVID-19 and Pregnancy. Walter K (2022), *JAMA (Journal of the American Medical Association)* vol 327, no 8, 22 February 2022, p 790

This JAMA Patient Page describes characteristics of COVID-19 among pregnant people and vaccination recommendations for people who are pregnant or breastfeeding. (Author)

2022-00640

Association of SARS-CoV-2 Infection With Serious Maternal Morbidity and Mortality From Obstetric Complications.

Metz TD, Clifton RG, Hughes BL, et al (2022), *JAMA (Journal of the American Medical Association)* vol 327, no 8, 22 February 2022, pp 748-759

Importance It remains unknown whether SARS-CoV-2 infection specifically increases the risk of serious obstetric morbidity.

Objective To evaluate the association of SARS-CoV-2 infection with serious maternal morbidity or mortality from common obstetric complications.

Design, Setting, and Participants Retrospective cohort study of 14 104 pregnant and postpartum patients delivered between March 1, 2020, and December 31, 2020 (with final follow-up to February 11, 2021), at 17 US hospitals participating in the Eunice Kennedy Shriver National Institute of Child Health and Human Development's Gestational Research Assessments of COVID-19 (GRAVID) Study. All patients with SARS-CoV-2 were included and compared with those without a positive SARS-CoV-2 test result who delivered on randomly selected dates over the same period.

Exposures SARS-CoV-2 infection was based on a positive nucleic acid or antigen test result. Secondary analyses further stratified those with SARS-CoV-2 infection by disease severity.

Main Outcomes and Measures The primary outcome was a composite of maternal death or serious morbidity related to hypertensive disorders of pregnancy, postpartum hemorrhage, or infection other than SARS-CoV-2. The main secondary outcome was cesarean birth.

Results Of the 14 104 included patients (mean age, 29.7 years), 2352 patients had SARS-CoV-2 infection and 11 752 did not have a positive SARS-CoV-2 test result. Compared with those without a positive SARS-CoV-2 test result, SARS-CoV-2 infection was significantly associated with the primary outcome (13.4% vs 9.2%; difference, 4.2% [95% CI, 2.8%-5.6%]; adjusted relative risk [aRR], 1.41 [95% CI, 1.23-1.61]). All 5 maternal deaths were in the SARS-CoV-2 group. SARS-CoV-2 infection was not significantly associated with cesarean birth (34.7% vs 32.4%; aRR, 1.05 [95% CI, 0.99-1.11]). Compared with those without a positive SARS-CoV-2 test result, moderate or higher COVID-19 severity (n = 586) was significantly associated with the primary outcome (26.1% vs 9.2%; difference, 16.9% [95% CI, 13.3%-20.4%]; aRR, 2.06 [95% CI, 1.73-2.46]) and the major secondary outcome of cesarean birth (45.4% vs 32.4%; difference, 12.8% [95% CI, 8.7%-16.8%]; aRR, 1.17 [95% CI, 1.07-1.28]), but mild or asymptomatic infection (n = 1766) was not significantly associated with the primary outcome (9.2% vs 9.2%; difference, 0% [95% CI, -1.4% to 1.4%]; aRR, 1.11 [95% CI,

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0.94-1.32]) or cesarean birth (31.2% vs 32.4%; difference, -1.4% [95% CI, -3.6% to 0.8%]; aRR, 1.00 [95% CI, 0.93-1.07]).

Conclusions and Relevance Among pregnant and postpartum individuals at 17 US hospitals, SARS-CoV-2 infection was associated with an increased risk for a composite outcome of maternal mortality or serious morbidity from obstetric complications. (Author)

2022-00598

Maternity Services: Coronavirus [written answer]. House of Commons (2022), Hansard Written question 99094, 6 January 2022

Maria Caulfield responds to a written question asked by Olivia Blake to the Secretary of State for Health and Social Care, with reference to NHS guidance, Supporting pregnant women using maternity services during the coronavirus pandemic: Actions for NHS providers, published on 14 December 2020, what steps he is taking to ensure that NHS Trusts adhere to that guidance; and what steps his department is taking to support NHS trusts to follow that guidance. (LDO)

Full URL: <https://questions-statements.parliament.uk/written-questions/detail/2022-01-06/99094>

2022-00583

Use of single-dose tocilizumab for treatment of severe COVID-19 in pregnancy: implications for the timing of live infant vaccines. Burkhardt I, Whittaker E (2022), Archives of Disease in Childhood vol 107, no 5, May 2022, p 517

Correspondence piece discussing the safety of live vaccines administered to infants after prenatal exposure to tocilizumab for the treatment of COVID-19 in the mother. The authors recommend delaying live vaccines until six months of age for infants who have been exposed. (LDO)

Full URL: <http://dx.doi.org/10.1136/archdischild-2021-323628>

2022-00525

Impact of the COVID-19 pandemic on the incidence of prematurity: critical role of gestational age and environment.

Weinberger B, Divers J, Campbell D, et al (2022), American Journal of Obstetrics & Gynecology (AJOG) vol 226, no 6, June 2022, pp 864-866

Research letter comparing rates of extreme prematurity with and without pre-eclampsia in New York during the COVID-19 pandemic. Results demonstrate an overall decrease in the number of extreme preterm births despite an increased rate of pre-eclampsia. (LDO)

Full URL: <https://doi.org/10.1016/j.ajog.2022.02.028>

2022-00443

Industrial Health and Safety: Pregnancy [written answer]. House of Commons (2022), Hansard Written question 125552, 18 February 2022

Chloe Smith responds to a written question asked by Zarah Sultana to the Secretary of State for Health and Social Care, regarding what assessment her department has made of the implications for its policies of the recommendations of the December 2021 Maternity Action report, Unsafe and Unsupported, on workplace health and safety for pregnant women during the COVID-19 outbreak. (LDO)

Full URL: <https://questions-statements.parliament.uk/written-questions/detail/2022-02-18/125552>

2022-00436

Severe Covid-19 infection linked to increase in risk during pregnancy. Baines E (2022), Nursing Times 24 February 2022

Pregnant women who are admitted to hospital with severe Covid-19 are at increased risk of serious birth complications, a UK study has shown. (Author)

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2022-00362

Obstetric outcomes in pregnant COVID-19 women: the imbalance of von Willebrand factor and ADAMTS13 axis.

Grandone E, Vimercati A, Sorrentino F, et al (2022), BMC Pregnancy and Childbirth vol 22, no 142, 21 February 2022

Background

Thrombotic microangiopathy has been invoked as one of the most important mechanisms of damage in COVID-19 patients. Protease ADAMTS13 is a marker of microangiopathy responsible for controlling von Willebrand multimers size. Von Willebrand factor/ADAMTS13 ratio has been found impaired in COVID-19 patients outside pregnancy.

Methods

We prospectively investigated 90 pregnant women admitted to two tertiary academic hospitals in Italy with a laboratory-confirmed diagnosis of SARS-CoV-2 infection. Demographic, clinical information and routine laboratory data were collected at the hospital admission and until discharge. We investigated whether vonWillebrand /ADAMTS13 axis imbalance is a predictor of adverse outcomes. Logistic regression analysis, which controlled for potential confounders, was performed to evaluate the association between laboratory parameters and clinical outcomes.

Results

Most women (55.6%) were parae, with median gestational age at admission of 39 weeks. At hospital admission, 63.3% were asymptomatic for COVID-19 and 24.4% showed more than one sign or symptom of infection. Nulliparae with group O showed Willebrand / ADA MTS-13 ratios significantly lower than non-O, whereas in multiparae this difference was not observed. Logistic regression showed that ratio von Willebrand to ADAMTS13 was significantly and independently associated with preterm delivery (OR 1.9, 95%CI 1.1–3.5).

Conclusion

This study shows an imbalance of vonWillebrand /ADAMTS13 axis in pregnant women with COVID-19, leading to a significantly higher and independent risk of preterm delivery. Monitoring these biomarkers might support decision making process to manage and follow-up pregnancies in this setting. (Author)

Full URL: <https://doi.org/10.1186/s12884-022-04405-8>

2022-00293

Potential role of neurofilament in COVID-19 and preeclampsia. Samara A, Herlenius E, O' Brien P, et al (2022), Cell Reports.

Medicine vol 3, no 1, January 2022, e100490

Neurofilament light (NFL) is a promising circulating biomarker in preeclampsia and COVID-19, even without evident neurological complications. Several pathways might contribute to the elevated serum NFL levels seen in both pathologies. Future studies will determine whether NFL is a long COVID marker and delineate NFL's role in COVID-19-associated preeclampsia. (Author)

Full URL: <https://doi.org/10.1016/j.xcrm.2021.100490>

2022-00157

Pregnancy and risk of COVID-19: a Norwegian registry-linkage study. Magnus MC, Oakley L, Gjessing HK, et al (2022), BJOG:

An International Journal of Obstetrics and Gynaecology vol 129, no 1, January 2022, pp 101-109

Objective

To compare the risk of acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection and contact with specialist healthcare services for coronavirus disease 2019 (COVID-19) between pregnant and non-pregnant women.

Population or sample

All women ages 15–45 living in Norway on 1 March 2020 (n = 1 033 699).

Methods

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We linked information from the national birth, patient, communicable diseases and education databases using unique national identifiers.

Main outcome measure

We estimated hazard ratios (HR) among pregnant compared to non-pregnant women of having a positive test for SARS-CoV-2, a diagnosis of COVID-19 in specialist healthcare, or hospitalisation with COVID-19 using Cox regression. Multivariable analyses adjusted for age, marital status, education, income, country of birth and underlying medical conditions.

Results

Pregnant women were not more likely to be tested for or to have a positive SARS-CoV-2 test (adjusted HR 0.99; 95% CI 0.92–1.07). Pregnant women had higher risk of hospitalisation with COVID-19 (HR 4.70, 95% CI 3.51–6.30) and any type of specialist care for COVID-19 (HR 3.46, 95% CI 2.89–4.14). Pregnant women born outside Scandinavia were less likely to be tested, and at higher risk of a positive test (HR 2.37, 95% CI 2.51–8.87). Compared with pregnant Scandinavian-born women, pregnant women with minority background had a higher risk of hospitalisation with COVID-19 (HR 4.72, 95% CI 2.51–8.87).

Conclusion

Pregnant women were not more likely to be infected with SARS-CoV-2. Still, pregnant women with COVID-19, especially those born outside of Scandinavia, were more likely to be hospitalised. (Author)

Full URL: <https://doi.org/10.1111/1471-0528.16969>

2022-00142

Maternal Outcomes After Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Infection in Vaccinated Compared With Unvaccinated Pregnant Patients. Morgan JA, Biggio JR, Martin JK, et al (2022), *Obstetrics & Gynecology* vol 139, no 1, January 2022, pp 107-109

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) vaccination is associated with lower odds of severe or critical coronavirus disease 2019 (COVID-19) or COVID-19 of any severity in pregnant patients during the Delta-predominant fourth SARS-CoV-2 surge. (Author)

Full URL: https://journals.lww.com/greenjournal/fulltext/9900/maternal_outcomes_after_severe_acute_respiratory.320.aspx

2022-00121

SARS-CoV-2 infection in pregnancy during the first wave of COVID-19 in the Netherlands: a prospective nationwide population-based cohort study (NethOSS). Overtom EM, Rosman AN, Zwart JJ, et al (2022), *BJOG: An International Journal of Obstetrics and Gynaecology* vol 129, no 1, January 2022, pp 91-100

Objective

To describe characteristics, risk factors and maternal, obstetric and neonatal outcomes of pregnant women infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).

Design

Multi-centre prospective population-based cohort study.

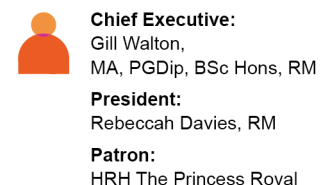
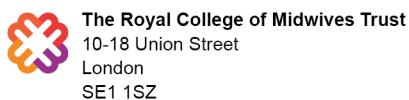
Setting

Nationwide study in the Netherlands.

Population

Pregnant women with confirmed SARS-CoV-2 infection admitted to hospital or in home-isolation: 1 March 2020 to 31 August 2020.

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Methods

Pregnant women with positive polymerase chain reaction or antibody tests were registered using the Netherlands Obstetrics Surveillance System (NethOSS). (Selective) testing occurred according to national guidelines. Data from the national birth registry (pregnant pre-coronavirus disease 2019 [COVID-19] cohort) and an age-matched cohort of COVID-19-positive women (National Institute for Public Health and the Environment; fertile age COVID-19 cohort) were used as reference.

Main outcome measures

Incidence of SARS-CoV-2 infection in pregnant women. Maternal, obstetric and neonatal outcomes including hospital and intensive care admission.

Results

Of 376 registered pregnant women with confirmed SARS-CoV-2 infection, 20% (74/376) were admitted to hospital, of whom 84% (62/74) were due to SARS-CoV-2; 10% (6/62) were admitted to intensive care and 15% (9/62) to obstetric high-care units. Risk factors for admission were non-European country of origin (odds ratio [OR] 1.73, 95% CI 1.01–2.96) and being overweight/obese (OR 1.86, 95% CI 1.51–3.20). No maternal or perinatal deaths occurred. Caesarean section after labour-onset was increased (OR 1.58, 95% CI 1.09–2.28). Hospital and intensive care admission were higher compared with the fertile age COVID-19 cohort (OR 6.75, 95% CI 5.18–8.81 and OR 2.52, 95% CI 1.11–5.77, respectively).

Conclusions

Non-European country of origin and being overweight/obese are risk factors for severe course of SARS-CoV-2 infection in pregnancy, risk of caesarean section and hospital and intensive care unit admission are increased.

(Author)

Full URL: <https://doi.org/10.1111/1471-0528.16903>

2022-00070

[Withdrawn] Coronavirus (COVID-19): advice for pregnant employees [Withdrawn: 1 April 2022]. Department of Health and Social Care, Health and Safety Executive (2020), London: DHSC 23 December 2020

Advice for pregnant employees on risk assessments in the workplace and occupational health during the coronavirus (COVID-19) pandemic. NB: This guidance was withdrawn on 1 April 2022 (Author)

Full URL: <https://www.gov.uk/government/publications/coronavirus-covid-19-advice-for-pregnant-employees>

2022-00037

Performance of diagnostic coding and laboratory testing results to measure COVID-19 during pregnancy and associations with pregnancy outcomes. Regan AK, Arah OA, Sullivan SG (2022), Paediatric and Perinatal Epidemiology vol 36, no 4, July 2022, pp 508-517

Background

Large-scale evaluation of COVID-19 is likely to rely on the quality of ICD coding. However, little is known about the validity of ICD-coded COVID-19 diagnoses.

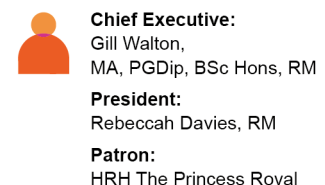
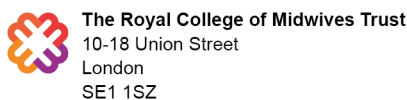
Objectives

To evaluate the performance of diagnostic codes in detecting COVID-19 during pregnancy.

Methods

We used data from a national cohort of 78,283 individuals with a pregnancy ending between 11 March 2020 and 31 January 2021 in the OptumLabs® Data Warehouse (OLDW). OLDW is a longitudinal, real-world data asset with de-identified administrative claims and electronic health record data. We identified all services with an ICD-10-CM diagnostic code of U07.1 and all laboratory claims records for COVID-19 diagnostic testing. We compared ICD-coded diagnoses to testing results to estimate positive and negative predictive values (PPV and NPV). To evaluate impact on

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risk estimation, we estimated risk of adverse pregnancy outcomes by source of exposure information.

Results

Of 78,283 pregnancies, 5644 had a laboratory test result for COVID-19. Testing was most common among older individuals, Hispanic individuals, those with higher socioeconomic status and those with a diagnosed medical condition or pregnancy complication; 52% of COVID-19 cases was identified through ICD-coded diagnosis alone, 19% from laboratory test results alone and 29% from both sources. Agreement between ICD-coded diagnosis and laboratory testing records was high 91% (95% confidence interval [CI] 90, 92). However, the PPV of ICD-code diagnosis was low (36%; 95% CI 33, 39). We observed up to a 50% difference in risk estimates of adverse pregnancy outcomes when exposure was based on laboratory testing results or diagnostic coding alone.

Conclusions

More than one-in-five COVID-19 cases would be missed by using ICD-coded diagnoses alone to identify COVID-19 during pregnancy. Epidemiological studies exclusively relying on diagnostic coding or laboratory testing results are likely to be affected by exposure misclassification. Research and surveillance should draw upon multiple sources of COVID-19 diagnostic information. (Author)

Full URL: <https://doi.org/10.1111/ppe.12863>

2022-00033

A review of COVID-19 therapeutics in pregnancy and lactation. Jorgensen SCJ, Tabbara N, Burry L (2022), *Obstetric Medicine* vol 15, no 4, December 2022, pp 225–232

Pregnant people have an elevated risk of severe COVID-19-related complications compared to their non-pregnant counterparts, underscoring the need for safe and effective therapies. In this review, we summarize published data on COVID-19 therapeutics in pregnancy and lactation to help inform clinical decision-making about their use in this population. Although no serious safety signals have been raised for many agents, data clearly have serious limitations and there are many important knowledge gaps about the safety and efficacy of key therapeutics used for COVID-19. Moving forward, diligent follow-up and documentation of outcomes in pregnant people treated with these agents will be essential to advance our understanding. Greater regulatory push and incentives are needed to ensure studies to obtain pregnancy data are expedited. (Author)

2022-00012

Anti-Spike Monoclonal Antibody Therapy in Pregnant Women With Mild-to-Moderate Coronavirus Disease 2019 (COVID-19). Thilagar BP, Ghosh AK, Nguyen J, et al (2022), *Obstetrics & Gynecology* vol 139, no 4, April 2022, pp 616-618

Anti-spike monoclonal antibody therapy may be effective for pregnant women with coronavirus disease 2019 (COVID-19). (Author) [Erratum: *Obstetrics & Gynecology*, vol 142, no 1, July 2023, p 220.

<https://doi.org/10.1097/AOG.0000000000005246>

Full URL: <https://doi.org/10.1097/AOG.0000000000004700>

2022-00006

Neutralizing Monoclonal Antibodies for Coronavirus Disease 2019 (COVID-19) in Pregnancy: A Case Series. Richley M, Rao RR, Afshar Y, et al (2022), *Obstetrics & Gynecology* vol 139, no 3, March 2022, pp 368-372

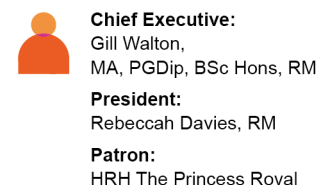
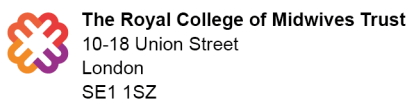
OBJECTIVE:

To describe outcomes associated with monoclonal antibody use in pregnant persons with mild-to-moderate coronavirus disease 2019 (COVID-19).

METHODS:

We present a retrospective case series of pregnant patients who received anti-severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) monoclonal antibody infusions at a single center from April 1, 2021, through October 16, 2021. Pregnant patients who had a positive SARS-CoV-2 polymerase chain reaction (PCR) test result and

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mild-to-moderate COVID-19 symptoms were eligible for monoclonal antibody infusion. Exclusion criteria for administration included need for supplemental oxygen, hospitalization due to COVID-19, and positive SARS-CoV-2 PCR test result more than 7 days before screening. All patients received either bamlanivimab plus etesevimab or casirivimab plus imdevimab based on availability and dosing instructions of the product and emerging resistance patterns in the community.

RESULTS:

During the study period, monoclonal antibody infusions were administered to 450 individuals at our institution, of whom 15 were pregnant. Of the 15 pregnant persons receiving monoclonal antibody, six (40%) had full-vaccination status at the time of infusion. Two individuals (13%, CI 0–31%) experienced systemic reactions during the infusion, both resulting in temporary changes in the fetal heart rate tracing that recovered with maternal and intrauterine resuscitative efforts. One patient delivered after infusion for worsening maternal and fetal status; the remainder of the patients did not require admission for COVID-19.

CONCLUSION:

In this case series, pregnant persons who received anti-SARS-CoV-2 monoclonal antibody infusions had generally favorable outcomes. (Author)

Full URL: <https://doi.org/10.1097/AOG.0000000000004689>

2022-0003

Early Administration of Remdesivir and Intensive Care Unit Admission in Hospitalized Pregnant Individuals With Coronavirus Disease 2019 (COVID-19). Eid J, Abdelwahab M, Colburn N, et al (2022), *Obstetrics & Gynecology* vol 139, no 4, April 2022, pp 619-621

Remdesivir has been shown to shorten the time to recovery in hospitalized patients with coronavirus disease 2019 (COVID-19). Data on its use in pregnancy are limited. In this single-center retrospective cohort study, our objective was to determine whether early remdesivir use in pregnant individuals is associated with decreased risk of admission to the intensive care unit (ICU). Forty-one pregnant patients were included in this study, and outcomes were compared between those who received remdesivir less than 7 days (early group) and 7 or more days (late group) from onset of patient-reported symptoms. Early remdesivir administration was associated with improved clinical outcomes, including lower rates of ICU admission, decreased length of hospitalization, and decreased progression to critical disease in pregnant individuals hospitalized with COVID-19. (Author)

Full URL: <https://doi.org/10.1097/AOG.0000000000004734>

2021-14558

Adapting obstetric and neonatal services during the COVID-19 pandemic: a scoping review. Gold S, Clarfield L, Johnstone J, et al (2022), *BMC Pregnancy and Childbirth* vol 22, no 119, 11 February 2022


Background

The provision of care to pregnant persons and neonates must continue through pandemics. To maintain quality of care, while minimizing physical contact during the Severe Acute Respiratory Syndrome-related Coronavirus-2 (SARS-CoV2) pandemic, hospitals and international organizations issued recommendations on maternity and neonatal care delivery and restructuring of clinical and academic services. Early in the pandemic, recommendations relied on expert opinion, and offered a one-size-fits-all set of guidelines. Our aim was to examine these recommendations and provide the rationale and context to guide clinicians, administrators, educators, and researchers, on how to adapt maternity and neonatal services during the pandemic, regardless of jurisdiction.


Method

Our initial database search used Medical subject headings and free-text search terms related to coronavirus infections, pregnancy and neonatology, and summarized relevant recommendations from international society guidelines. Subsequent targeted searches to December 30, 2020, included relevant publications in general medical

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and obstetric journals, and updated society recommendations.

Results

We identified 846 titles and abstracts, of which 105 English-language publications fulfilled eligibility criteria and were included in our study. A multidisciplinary team representing clinicians from various disciplines, academics, administrators and training program directors critically appraised the literature to collate recommendations by multiple jurisdictions, including a quaternary care Canadian hospital, to provide context and rationale for viable options.

Interpretation

There are different schools of thought regarding effective practices in obstetric and neonatal services. Our critical review presents the rationale to effectively modify services, based on the phase of the pandemic, the prevalence of infection in the population, and resource availability. (Author)

Full URL: <https://doi.org/10.1186/s12884-022-04409-4>

2021-14555

Comorbidity, poverty and social vulnerability as risk factors for mortality in pregnant women with confirmed SARS-CoV-2 infection: analysis of 13 062 positive pregnancies including 176 maternal deaths in Mexico. Torres-Torres J, Martinez-Portilla RJ, Espino-y-Sosa S, et al (2022), *Ultrasound in Obstetrics and Gynecology* vol 59, no 1, January 2022, pp 76-82

Objective

Mortality in pregnancy due to coronavirus disease 2019 (COVID-19) is a current health priority in developing countries. Identification of clinical and sociodemographic risk factors related to mortality in pregnant women with COVID-19 could guide public policy and encourage such women to accept vaccination. We aimed to evaluate the association of comorbidities and socioeconomic determinants with COVID-19-related mortality and severe disease in pregnant women in Mexico.

Methods

This is an ongoing nationwide prospective cohort study that includes all pregnant women with a positive reverse-transcription quantitative polymerase chain reaction result for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) from the Mexican National Registry of Coronavirus. The primary outcome was maternal death due to COVID-19. The association of comorbidities and socioeconomic characteristics with maternal death was explored using a log-binomial regression model adjusted for possible confounders.


Results

There were 176 (1.35%) maternal deaths due to COVID-19 among 13 062 consecutive SARS-CoV-2-positive pregnant women. Maternal age, as a continuous (adjusted relative risk (aRR), 1.08 (95% CI, 1.05–1.10)) or categorical variable, was associated with maternal death due to COVID-19; women aged 35–39 years (aRR, 3.16 (95% CI, 2.34–4.26)) or 40 years or older (aRR, 4.07 (95% CI, 2.65–6.25)) had a higher risk for mortality, as compared with those aged < 35 years. Other clinical risk factors associated with maternal mortality were pre-existing diabetes (aRR, 2.66 (95% CI, 1.65–4.27)), chronic hypertension (aRR, 1.75 (95% CI, 1.02–3.00)) and obesity (aRR, 2.15 (95% CI, 1.46–3.17)). Very high social vulnerability (aRR, 1.88 (95% CI, 1.26–2.80)) and high social vulnerability (aRR, 1.49 (95% CI, 1.04–2.13)) were associated with an increased risk of maternal mortality, while very low social vulnerability was associated with a reduced risk (aRR, 0.47 (95% CI, 0.30–0.73)). Being poor or extremely poor were also risk factors for maternal mortality (aRR, 1.53 (95% CI, 1.09–2.15) and aRR, 1.83 (95% CI, 1.32–2.53), respectively).


Conclusion

This study, which comprises the largest prospective consecutive cohort of pregnant women with COVID-19 to date, has confirmed that advanced maternal age, pre-existing diabetes, chronic hypertension, obesity, high social vulnerability and low socioeconomic status are risk factors for COVID-19-related maternal mortality. © 2021 International Society of Ultrasound in Obstetrics and Gynecology. (Author)

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2021-14505

A clearer view to COVID-19 domestic violence and abuse — gaining insight by using a visionary post-feminist lens.

Richards J (2022), MIDIRS Midwifery Digest vol 32, no 1, March 2022, pp 74-80

According to the Office for National Statistics (ONS), domestic abuse will affect 1:4 women and 1:6 men in their lifetime (ONS 2020a) (1). This paper looks at the facts — from a post-feminist perspective — and examines some of the issues, particularly in relation to routine enquiry in midwifery.

As a matter of child protection, issues highlighted in the smooth transition between hospital cot and nursery are discussed, facilitated by the midwife's pivotal role in discharge planning. The long-term repercussions of domestic violence and abuse, jeopardising the developmental health and wellbeing of the child beyond the uterus, are highlighted.

1. Office for National Statistics (ONS) (2020a). Domestic abuse victim characteristics, England and Wales: year ending March 2020. London: ONS.

<https://www.ons.gov.uk/peoplepopulationandcommunity/crimeandjustice/articles/domesticabusevictimcharacteristicsenglandandwales/yearendingmarch2020>.

(Author, edited)

2021-14499

Hispanic race is a risk factor for COVID-19 during pregnancy: data from an urban New York City hospital. Elkafrawi D, Sisti G, Mercado F, et al (2022), Journal of Obstetrics and Gynaecology vol 42, no 5, 2022, pp 1054-1057

There are limited studies on predisposing factors for COVID-19 positivity in asymptomatic pregnant women. The literature published to date on asymptomatic COVID-19 pregnant carriers does not focus on pregnancy or pre-pregnancy comorbidities. We wanted to identify risk factors for COVID-19 in asymptomatic pregnant women. We performed a retrospective chart review of 263 asymptomatic pregnant women admitted to labour and delivery at New York City Health + Hospitals/Lincoln.

We analysed the association between race, body mass index (BMI), smoking, indication for admission, gravidity, parity, pre-pregnancy comorbidity, pregnancy comorbidity via uni- and multivariate statistical tests. Only Hispanic race was significant in the univariate analysis ($p = .049$). At the post-hoc analysis, Hispanics had a higher proportion of COVID-19 cases compared to non-Hispanic Blacks ($p = .019$). No variables were significantly associated with COVID-19 positivity in the multivariate analysis.

Hispanic race appears to be a risk factor for asymptomatic COVID-19 infection during pregnancy. We speculate that the cultural and socioeconomic reality of Hispanic women living in our community leads to more exposure opportunities and therefore, a higher infection rate.

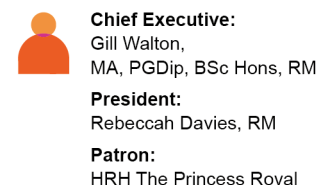
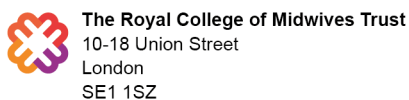
Impact statement

What is already known on this subject? Little is known on the role of comorbidities and risk factors that can favour COVID-19 infection during pregnancy.

What do the results of this study add? We found that Hispanic pregnant asymptomatic women had a higher rate of COVID-19 in comparison to non-Hispanic Black women. Pre-pregnancy comorbidities such as pregestational diabetes, hypertension and asthma were not associated with COVID-19 positivity.

What are the implications of these findings for clinical practice and/or further research? The reasons why the Hispanic race is more affected by COVID-19 during pregnancy is unclear. The social environment of Hispanic women living in our community, such as their tendency to live in multigenerational and multi-family households, might contribute to a higher infection rate. More resources might be dedicated in the future to Hispanic-dense neighbourhoods. (Author)

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2021-14492

Acute Respiratory Failure and Mechanical Ventilation in Women With COVID-19 During Pregnancy Best Clinical

Practices. Troiano NH, Richter A, King C (2022), The Journal of Perinatal and Neonatal Nursing vol 36, no 1, January/March 2022, pp 27-36

Symptomatic pregnant women with coronavirus disease-2019 (COVID-19) are at increased risk of severe disease and death compared with symptomatic nonpregnant females of reproductive age. Among those who become critically ill, profound acute hypoxemic respiratory failure is the dominant finding. Significant morbidity and mortality from COVID-19 are largely due to acute viral pneumonia that evolves to acute respiratory distress syndrome. Admission of these patients with critical disease to an intensive care unit and initiation of invasive mechanical ventilation may be indicated. Effective ventilatory support can be challenging in the COVID-19 patient population, even more so when the need occurs in a woman during pregnancy. Key respiratory changes during pregnancy are reviewed. Principles related to maternal-fetal oxygen transport, assessment of ventilation and oxygenation status, and oxygenation goals are also reviewed. Selected concepts related to mechanical ventilatory support for the woman with COVID-19 and acute respiratory failure during pregnancy are presented including indications for ventilatory support, noninvasive support, and invasive ventilator management. Challenges in providing care to this patient population are identified as well as strategies to address them going forward. (Author)

2021-14486

Pandemics Past, Present, and Future: What History Can Teach Us. Kriebs JM (2022), The Journal of Perinatal and Neonatal Nursing vol 36, no 1, January/March 2022, pp 7-10

One of the lessons of the current pandemic is that Americans have lost trust in the public health system in the United States (US) and in the health recommendations of the Federal government. History tells us that each pandemic brings new challenges and new lessons. Looking back at the history of pandemics, and at the present experience, nurses and midwives can craft responses to patient concerns and contribute to future planning that better addresses the needs of maternal-child health practices. (Author)

2021-14290

Obstetric interventions and pregnancy outcomes during the COVID-19 pandemic in England: A nationwide cohort study. Gurol-Urganci I, Waite L, Webster K, et al (2022), PLoS Medicine vol 19, no 1, January 2022, e1003884

Background

The COVID-19 pandemic has disrupted maternity services worldwide and imposed restrictions on societal behaviours. This national study aimed to compare obstetric intervention and pregnancy outcome rates in England during the pandemic and corresponding pre-pandemic calendar periods, and to assess whether differences in these rates varied according to ethnic and socioeconomic background.

Methods and findings

We conducted a national study of singleton births in English National Health Service hospitals. We compared births during the COVID-19 pandemic period (23 March 2020 to 22 February 2021) with births during the corresponding calendar period 1 year earlier. The Hospital Episode Statistics database provided administrative hospital data about maternal characteristics, obstetric interventions (induction of labour, elective or emergency cesarean section, and instrumental birth), and outcomes (stillbirth, preterm birth, small for gestational age [SGA; birthweight < 10th centile], prolonged maternal length of stay (≥ 3 days), and maternal 42-day readmission). Multi-level logistic regression models were used to compare intervention and outcome rates between the corresponding pre-pandemic and pandemic calendar periods and to test for interactions between pandemic period and ethnic and socioeconomic background. All models were adjusted for maternal characteristics including age, obstetric history, comorbidities, and COVID-19 status at birth. The study included 948,020 singleton births (maternal characteristics: median age 30 years, 41.6% primiparous, 8.3% with gestational diabetes, 2.4% with preeclampsia, and 1.6% with pre-existing diabetes or

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hypertension); 451,727 births occurred during the defined pandemic period. Maternal characteristics were similar in the pre-pandemic and pandemic periods. Compared to the pre-pandemic period, stillbirth rates remained similar (0.36% pandemic versus 0.37% pre-pandemic, $p = 0.16$). Preterm birth and SGA birth rates were slightly lower during the pandemic (6.0% versus 6.1% for preterm births, adjusted odds ratio [aOR] 0.96, 95% CI 0.94–0.97; 5.6% versus 5.8% for SGA births, aOR 0.95, 95% CI 0.93–0.96; both $p < 0.001$). Slightly higher rates of obstetric intervention were observed during the pandemic (40.4% versus 39.1% for induction of labour, aOR 1.04, 95% CI 1.03–1.05; 13.9% versus 12.9% for elective cesarean section, aOR 1.13, 95% CI 1.11–1.14; 18.4% versus 17.0% for emergency cesarean section, aOR 1.07, 95% CI 1.06–1.08; all $p < 0.001$). Lower rates of prolonged maternal length of stay (16.7% versus 20.2%, aOR 0.77, 95% CI 0.76–0.78, $p < 0.001$) and maternal readmission (3.0% versus 3.3%, aOR 0.88, 95% CI 0.86–0.90, $p < 0.001$) were observed during the pandemic period. There was some evidence that differences in the rates of preterm birth, emergency cesarean section, and unassisted vaginal birth varied according to the mother's ethnic background but not according to her socioeconomic background. A key limitation is that multiple comparisons were made, increasing the chance of false-positive results.

Conclusions

In this study, we found very small decreases in preterm birth and SGA birth rates and very small increases in induction of labour and elective and emergency cesarean section during the COVID-19 pandemic, with some evidence of a slightly different pattern of results in women from ethnic minority backgrounds. These changes in obstetric intervention rates and pregnancy outcomes may be linked to women's behaviour, environmental exposure, changes in maternity practice, or reduced staffing levels. (Author)

Full URL: <https://doi.org/10.1371/journal.pmed.1003884>

2021-14144

Coronavirus: Antenatal Appointments [written answer]. Scottish Parliament (2022), Official Report Written question S6W-05853, 24 January 2022

Maree Todd responds to a written question asked by Alexander Burnett to the Scottish Government, regarding when it expects COVID-19 restrictions to be eased to allow pregnant mothers to take their young children with them when attending midwife appointments, in order to alleviate the need to find alternative childcare. (MB)

Full URL: <https://archive2021.parliament.scot/parliamentarybusiness/28877.aspx?SearchType=Advance&ReferenceNumbers=S6W-05853>

2021-13962

The experience of women with recent gestational diabetes during the COVID-19 lockdown: a qualitative study from Denmark. Jensen NH, Nielsen KK, Dahl-Petersen IK, et al (2022), BMC Pregnancy and Childbirth vol 22, no 84, 29 January 2022

Background

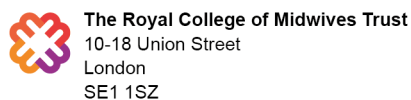
Following COVID-19 and the lockdowns, maternity care and support for women after delivery have been temporary restructured. Studies show that COVID-19 adversely impacts pregnant and peripartum women in the general population, but experiences among women in the first year after delivery/in the wider postpartum period remain unexplored. Moreover, experiences among women with recent gestational diabetes mellitus (GDM) are lacking; though it is a group with a potential high need for support after delivery. The aim of our study was to investigate (i) how women with recent GDM experienced COVID-19 and the first lockdown in Denmark, and (ii) the women's risk perception and health literacy in terms of interaction with the healthcare system in relation to COVID-19.

Methods

We performed a qualitative study among 11 women with recent GDM (infants aged 2-11 months old). Semi-structured interviews were conducted in April-May 2020 by telephone or Skype for Business, when Denmark was under lockdown. We analysed data using a thematic qualitative content analysis.

Results

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Three themes emerged: i) Everyday life and family well-being, ii) Worries about COVID-19 and iii) Health literacy: Health information and access to healthcare. The women were generally not worried about their own or their infant's risk of COVID-19. The lockdown had a negative impact on everyday life e.g. routines, loneliness, breastfeeding uncertainties and worries for the infant's social well-being; but better family dynamics were also described. It was challenging to maintain healthy behaviours and thus the women described worries for the risk of type 2 diabetes and GDM in subsequent pregnancies. The women missed peer support and face-to-face visits from health visitors and found it difficult to navigate the restructured care with online/telephone set-ups.

Conclusions

COVID-19 and the lockdown affected everyday life among women with recent GDM both positively and negatively. Our findings suggest a need for care that are responsive to psychological and social aspects of health throughout the COVID-19 pandemic and support to limit worries about adaptation to motherhood and the infant's social well-being. Communication focusing on the importance and relevance of contacting healthcare providers should also be strengthened. (Author)

Full URL: <https://doi.org/10.1186/s12884-022-04424-5>

2021-13961

Effects of the COVID-19 pandemic on perinatal outcomes: a retrospective cohort study from Turkey. Yalçın SS, Boran P, Tezel B, et al (2022), BMC Pregnancy and Childbirth vol 22, no 51, 20 January 2022

Background

Lockdowns, pregnant women's fear from hospitalization in addition to uncertainties about appropriate birthing practices at the beginning of the pandemic may have affected the health outcomes of mother-infant couples. We aimed to explore whether pregnancy outcomes including the rates of cesarean delivery (CS), preterm, and low birth weight (LBW) births have changed during the pandemic period compared with the pre-pandemic period.

Methods

We applied a population-based retrospective cohort, before-after approach in 2020 vs. similar calendar months in 2019 for five periods [Jan-Feb (pre-pandemic); March–May (1st wave and lockdown); June–August; September–October; November–December (2nd wave and lockdown)]. The data was modelled through multiple logistic regressions using key outcomes; CS, preterm, and LBW births as the dependent variables, and adjustments were made for independent variables in SPSS software. We evaluated the modification of years by periods by adding interaction term (yearXperiod) to the model.

Results

The rate of CS in hospital births increased from 57.7% in 2019 to 60.2% in 2020. CS rates were significantly increased during the 3rd and 4th periods. The overall preterm rate was 11%. When singleton pregnancies were considered, adjusted multivariable analyses showed a decrease in preterm proportions during all time periods with respect to the pre-pandemic period. The percentage of LBW was 7.7% during the pandemic period and was found to be significantly reduced compared to the pre-pandemic period. There was a significant reduction in LBW rates in all periods except the second lockdown period.

Conclusions

Our findings suggested significant reductions in preterm and LBW births possibly due to the indirect effects of the pandemic. Moreover, strategies need to be considered to address the increased CS rates and shifting of maternity service utilization to private facilities. (Author)

Full URL: <https://doi.org/10.1186/s12884-021-04349-5>

2021-13958

Effect of initial COVID-19 outbreak during first trimester on pregnancy outcome in Wuxi, China. Liu Y, Dai M, Tang S

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Background

A hospital-based retrospective study was conducted to examine the effect of initial COVID-19 outbreak during first trimester on pregnancy outcome in Wuxi, China.

Methods

Women who delivered children at our hospital during June 2020 to July 2020 (control group), and October 2020 to December 2020 (exposure group) were recruited in the present study. All of the participants were not infected with COVID-19. The last menstrual period (LMP) of the exposure group was between January 24th, 2020 and March 12th, 2020, whilst in the control group, the LMP was between May 12th and October 31st, 2019.

Results

There were 1,456 women in the exposure group and 1,816 women in the control group. Women in the exposure group were more susceptible to hypertension during pregnancy (HDP, $P = 0.004$, $OR[95\%CI] = 1.90[1.22-2.95]$) and gestational diabetes mellitus (GDM, $P = 0.008$, $OR[95\%CI] = 1.31[1.08-1.60]$) compared to those in the control group. Mothers diagnosed with HDP were more likely to deliver premature infants, leading to a higher rate of low birth weight (all $P < 0.05$). The other common outcomes of pregnancy showed no statistical differences between the two groups.

Conclusions

The initial COVID-19 outbreak might increase the incidence rates of HDP and GDM among pregnant women whose first trimesters were during that period, resulting in higher percentages of premature delivery and low birth weight. These results should be confirmed by studies from other hospitals or cities. (Author)

Full URL: <https://doi.org/10.1186/s12884-022-04395-7>

2021-13835

A real-world assessment of tolerability and treatment outcomes of COVID-19 monoclonal antibodies administered in pregnancy. Chang MH, Cowman K, Guo Y, et al (2022), American Journal of Obstetrics & Gynecology (AJOG) vol 226, no 5, May 2022, pp 743-745

Research letter aiming to evaluate the tolerability of monoclonal antibodies for treatment of COVID-19 in pregnancy and to assess subjective improvement in symptoms. Results indicate that monoclonal antibodies are well tolerated and should be considered in pregnancy. (LDO)

Full URL: <https://doi.org/10.1016/j.ajog.2022.01.018>

2021-13830

Changes and geographic variation in rates of preterm birth and stillbirth during the prepandemic period and COVID-19 pandemic, according to health insurance claims in the United States, April–June 2019 and April–June 2020.

Chen J, Ferre C, Ouyang L, et al (2022), American Journal of Obstetrics & Gynecology MFM vol 4, no 1, January 2022, 100508

Research letter comparing premature birth and stillbirth rates between the pre-pandemic period and COVID-19 lockdown period in the United States. Results show a 0.4% decrease in premature birth and no changes in stillbirth rates during the COVID-19 pandemic. (LDO)

Full URL: <https://doi.org/10.1016/j.ajogmf.2021.100508>

2021-13814

COVID-19 pandemic and population-level pregnancy and neonatal outcomes in general population: A living systematic review and meta-analysis (Update#2: November 20, 2021). Yang J, D'Souza R, Kharrat A, et al (2022), Acta Obstetrica et Gynecologica Scandinavica vol 101, no 3, March 2022, pp 273-292

Introduction

Conflicting reports of increases and decreases in rates of preterm birth (PTB) and stillbirth in the general population during the coronavirus disease 2019 (COVID-19) pandemic have surfaced. The objective of our study was to conduct a

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living systematic review and meta-analyses of studies reporting pregnancy and neonatal outcomes by comparing the pandemic and pre-pandemic periods.

Material and methods

We searched the PubMed and Embase databases and reference lists of articles published up until November 20, 2021, and included English language studies that compared outcomes between the COVID-19 pandemic time period with pre-pandemic time periods. Risk of bias was assessed using the Newcastle-Ottawa scale. We conducted random-effects meta-analysis using the inverse variance method.

Results

Fifty-two studies with low-to-moderate risk of bias, reporting on 2 372 521 pregnancies during the pandemic period and 28 518 300 pregnancies during the pre-pandemic period, were included. There was significant reduction in unadjusted estimates of PTB (43 studies, unadjusted odds ratio [uaOR] 0.95, 95% CI 0.93–0.98), but not in adjusted estimates (five studies, adjusted OR [aOR] 0.94, 95% CI 0.74–1.19). This reduction was noted in studies from single centers/health areas (29 studies, uaOR 0.90, 95% CI 0.85–0.94) but not in regional/national studies (14 studies, uaOR 0.99, 95% CI 0.99–1.01). There was reduction in spontaneous PTB (nine studies, uaOR 0.91, 95% CI 0.88–0.94) but not in induced PTB (eight studies, uaOR 0.90, 95% CI 0.79–1.01). There was no difference in the odds of stillbirth between the pandemic and pre-pandemic time periods (32 studies, uaOR 1.07, 95% CI 0.97–1.18 and three studies, aOR 1.18, 95% CI 0.86–1.63). There was an increase in mean birthweight during the pandemic period compared with the pre-pandemic period (nine studies, mean difference 21 g, 95% CI 13–30 g). The odds of maternal mortality were increased (five studies, uaOR 1.15, 95% CI 1.05–1.26); however, only unadjusted estimates were available, and the result was mostly influenced by one study from Mexico. There was significant publication bias for the outcome of PTB.

Conclusions

The COVID-19 pandemic may be associated with a reduction in PTB; however, referral bias cannot be excluded. There was no statistically significant difference in stillbirths between pandemic and pre-pandemic periods. (Author)

Full URL: <https://doi.org/10.1111/aogs.14318>

2021-13805

SARS-CoV-2 infection and a subsequent secondary atrophy/atresia of one of the umbilical arteries. Ignatov PN, Neykova KN (2022), *Journal of Maternal-Fetal and Neonatal Medicine* vol 35, no 25, 2022, pp 9317-9319

We conducted a retrospective study among patients who visited two tertiary clinical settings between April 2020 and July 2021. Diagnosis of a single umbilical artery (SUA) was made on four patients during the 18th-23rd week fetal anatomy scan after the previous 11th-13th week scan records proved affirmative for the presence of two umbilical arteries (UAs). (Author, edited)

2021-13698

Severe COVID-19 in pregnancy is almost exclusively limited to unvaccinated women – time for policies to change.

Engjom H, van den Akker T, Aabakke A, et al (2022), *The Lancet Regional Health - Europe* 26 January 2022, online

Commentary piece analysing data from the International Network of Obstetric Survey Systems (INOSS) collected in the United Kingdom (UK), the Netherlands, Norway, Denmark, Finland and Italy between May and December 2021.

Results show that at least 80% of pregnant women admitted to critical care with COVID-19 were unvaccinated across the six countries, including 98% of pregnant women in the UK. (LDO)

Full URL: <https://doi.org/10.1016/j.lanepe.2022.100313>

2021-13621

Spontaneous Intracerebral Hemorrhage (ICH) associated with pregnancy and SARS-CoV-2 infection: a case report. Dini

P, Aminimoghaddam S, Mirzaasgari Z, et al (2022), *BMC Pregnancy and Childbirth* vol 22, no 14, 6 January 2022

Background

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Coronavirus Disease 2019 (COVID-19) is predominately known as a respiratory disease associated with pneumonia, acute respiratory distress syndrome and multiorgan failure. However, extra-pulmonary complications of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) are increasingly being recognized. In this regard, some studies implied the hemostatic and vascular involvements in patients with SARS-CoV-2 infection.

Case presentation

We describe a case of spontaneous Intracerebral Hemorrhage (ICH) in a pregnant patient with COVID-19 and history of cesarean section a week before the occurrence of ICH. The patient underwent emergent craniotomy with acceptable outcome. Hemorrhagic events, including ICH, may happen during COVID-19 infection with several possible mechanisms.

Conclusion

COVID-19 patients, especially high-risk groups, are at a risk of intracranial hemorrhage. Therefore, close follow-up must be maintained and hemorrhagic events must be kept in mind in these cases. (Author)

Full URL: <https://doi.org/10.1186/s12884-021-04345-9>

2021-13581

Mind the Gap: COVID-19 highlights the research void in pregnancy. Dangel A, Yu V, Liang C, et al (2022), American Journal of Obstetrics & Gynecology MFM vol 4, no 3, May 2022, 100566

Discusses the lack of research involving pregnant women and suggests that the COVID-19 pandemic can be used as an opportunity to evaluate the research landscape. (LDO)

Full URL: <https://doi.org/10.1016/j.ajogmf.2022.100566>

2021-13570

Twin-to-twin transfusion syndrome and coronavirus disease 2019: impact on diagnosis, referral, eligibility for fetoscopic laser therapy, and outcomes. López-Briones H, Villalobos-Gómez R, Chávez-González E, et al (2022), AJOG Global Reports vol 2, no 1, February 2022, 100040

Background

Due to the progressive nature of twin-to-twin transfusion syndrome (TTTS), hindering on health care access during the coronavirus disease (COVID-19) pandemic may lead to delayed diagnosis and referral to fetal surgery centers, which may have repercussions on outcomes.

Objective

To assess the clinical impact of the COVID-19 pandemic on pregnancies complicated with TTTS.

Study Design

A retrospective cohort of consecutive monochorionic diamniotic twin pregnancies complicated with TTTS evaluated in our national referral fetal surgery center at Queretaro, Mexico for possible surgical fetoscopy was constructed. Maternal-fetal characteristics and perinatal outcomes of cases evaluated during the first year of the World Health Organization's COVID-19 pandemic declaration (11 March 2020- 10 March 2021) were retrospectively compared with cases evaluated during the same period in the previous year (11 March 2019 – 10 March 2020).

Results

109 consecutive TTTS cases were evaluated during the 2-year study period, 54 during the COVID-19 pandemic and 55 in the previous year. In the former group, a higher proportion of cases with fetal surveillance interval longer than 2 weeks (70.4% vs. 47.3%, $p=0.01$), TTTS complications precluding laser therapy such as intrauterine fetal demise, preterm rupture of membranes, or cervical dilatation with prolapsed amniotic membranes (18.5% vs. 1.8%, $p<0.01$), advanced TTTS (53.7% vs. 36.4%, $p=0.07$), preoperative short cervix (25.9% vs. 10.9%, $p<0.05$), and lower overall perinatal survival (56.9% vs. 80.0%, $p=0.01$ of at least one twin; and 39.2% vs. 56.4%, $p=0.08$ of both twins, respectively)

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were observed. A significantly lower number of cases were selected for fetoscopic laser therapy during the pandemic period (75.9% vs. 92.7%, $p=0.01$), with similar postoperative outcomes seen in both study periods.

Conclusion

In pregnancies with TTTS, the COVID-19 pandemic has shown an adverse impact involving suboptimal fetal surveillance, advanced stages at diagnosis, poorer survival rates, and higher number of complications that preclude fetoscopic laser therapy. (Author)

Full URL: <https://doi.org/10.1016/j.xagr.2021.100040>

2021-13520

Covid-19: Severe complications during pregnancy are more common in unvaccinated women, study finds. Mahase E (2022), BMJ vol 376, no 8322, 17 January 2022, o117

Unvaccinated women accounted for 77% of SARS-CoV-2 infections that have occurred during pregnancy in Scotland and 98% of infections that led to a critical care admission, a study has found (1).

1. Stock SJ et al. Nature Medicine, 13 January 2022, online. <https://doi.org/10.1038/s41591-021-01666-2>.

(Author, edited)

Full URL: <https://doi.org/10.1136/bmj.o117>

2021-13441

Covid in pregnancy linked to birth-related complications. Anon (2022), BBC News 13 January 2022

A new study (1) has linked Covid-19 to complications during pregnancy.

1. Stock SJ. Nature Medicine, 13 January 2022, online. <https://doi.org/10.1038/s41591-021-01666-2>.

(Author, edited)

Full URL: <https://www.bbc.co.uk/news/uk-scotland-59986452>

2021-13440

SARS-CoV-2 infection and COVID-19 vaccination rates in pregnant women in Scotland. Stock SJ, Carruthers J, Calvert C, et al (2022), Nature Medicine 13 January 2022, online

Population-level data on COVID-19 vaccine uptake in pregnancy and SARS-CoV-2 infection outcomes are lacking. We describe COVID-19 vaccine uptake and SARS-CoV-2 infection in pregnant women in Scotland, using whole-population data from a national, prospective cohort. Between the start of a COVID-19 vaccine program in Scotland, on 8 December 2020 and 31 October 2021, 25,917 COVID-19 vaccinations were given to 18,457 pregnant women. Vaccine coverage was substantially lower in pregnant women than in the general female population of 18–44 years; 32.3% of women giving birth in October 2021 had two doses of vaccine compared to 77.4% in all women. The extended perinatal mortality rate for women who gave birth within 28 d of a COVID-19 diagnosis was 22.6 per 1,000 births (95% CI 12.9–38.5; pandemic background rate 5.6 per 1,000 births; 452 out of 80,456; 95% CI 5.1–6.2). Overall, 77.4% (3,833 out of 4,950; 95% CI 76.2–78.6) of SARS-CoV-2 infections, 90.9% (748 out of 823; 95% CI 88.7–92.7) of SARS-CoV-2 associated with hospital admission and 98% (102 out of 104; 95% CI 92.5–99.7) of SARS-CoV-2 associated with critical care admission, as well as all baby deaths, occurred in pregnant women who were unvaccinated at the time of COVID-19 diagnosis.

Addressing low vaccine uptake rates in pregnant women is imperative to protect the health of women and babies in the ongoing pandemic. (Author)

Full URL: <https://doi.org/10.1038/s41591-021-01666-2>

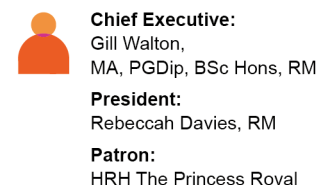
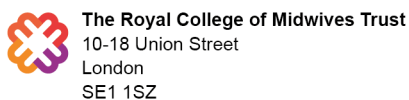
2021-13078

Systematic review and meta-analysis of COVID-19 maternal and neonatal clinical features and pregnancy outcomes up to June 3, 2021. Marchand G, Patil AS, Masoud AT, et al (2022), AJOG Global Reports vol 2, no 1, February 2022, 100049

Objectives

COVID-19 is a rapidly changing and developing emergency that requires constant re-evaluation of available data. We

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report a systematic review and meta analysis based on all published high quality data up to and including June 3rd 2021 on the maternal and neonatal outcomes in pregnant women infected with the Coronavirus Disease 2019 (COVID-19).

Data Sources

PubMed, SCOPUS, MEDLINE, ClinicalTrials.gov, and Web of Science databases were queried from inception up to June 3rd 2021.

Study Eligibility Criteria

We included all clinical studies (prospective and retrospective cohort studies, case-control studies, case series, and rapid communications) that reported data on any maternal and neonatal outcomes of pregnant women with COVID-19.

Study Appraisal and Synthesis Methods

Data were analyzed as pooled proportions or odds ratios (OR) and 95% confidence intervals (95% CI) in meta-analysis models.

Results

We included 111 studies enrolling 42754 COVID-19-positive pregnant women. From COVID-19-positive pregnant women, the incidence rate of cesarean section was 53.2% (95% CI: 48%–58.4%), 41.5% (95% CI: 36.3%–46.8%) for spontaneous vaginal delivery and 6.4% (95% CI: 4.5%–9.2%) for operative delivery. The rate of some adverse neonatal events was relatively high in mothers infected with COVID-19 including premature delivery (16.7%, 95% CI: 12.8%–21.5%), and low birthweight (16.7%, 95% CI: 12.8%–21.5%). Vertical transmission (3.5%, 95% CI: 2.7%–4.7%), neonatal death (3%, 95% CI: 2%–4%), stillbirth (1.9%, 95% CI: 1.5–2.4%) and maternal mortality (0.012% 95% CI: 0.010-0.014%) were rare adverse events. Mean birth weight was 3069.7g, 95% CI: 3009.7g–3129.8g). In the comparative analysis, COVID-19 significantly increased the risk of premature delivery (OR= 1. 48, [95% CI; 1 .22, 1.8]), preeclampsia (OR= 1. 6, [95% CI; 1.2, 2.1]), stillbirth (OR= 2.36, [95% CI 1.24, 4.462]), neonatal mortality (OR= 3.35, [95% CI; 1.07, 10.5]), and maternal mortality (OR= 3.08, [95% CI; 1.5, 6.3]). Pooled analyses were homogenous, with mild heterogeneity in premature delivery and preeclampsia outcomes.

Conclusion

Data must be interpreted with caution as limited data is available and no complete assessment of bias is possible at this time. Our data suggests that pregnant women who test positive for COVID-19 seem to be at higher risk for lower birth weights and premature delivery. There is no evidence at this time of the sharply increased maternal mortality that was seen with both the previous 2002 Middle East Respiratory Syndrome (MERS) and 2003 Severe Acute Respiratory Syndrome (SARS) pandemics. (Author)

Full URL: <https://doi.org/10.1016/j.xagr.2021.100049>

2021-09872

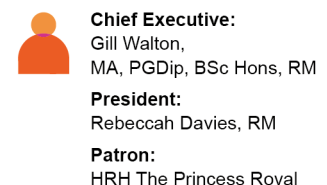
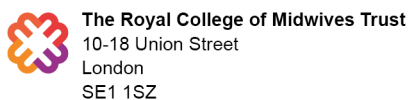
Attitudes Toward COVID-19 Illness and COVID-19 Vaccination among Pregnant Women: A Cross-Sectional Multicenter Study during August–December 2020. Battarbee AN, Stockwell MS, Varner M, et al (2022), American Journal of Perinatology vol

39, no 1, January 2022, pp 75-83

Objective The aim of the study was to evaluate pregnant women's attitudes toward COVID-19 illness and vaccination and identify factors associated with vaccine acceptability.

Study Design This was a cross-sectional survey among pregnant women enrolled in a prospective COVID-19 cohort study in Salt Lake City, UT, Birmingham, AL, and New York, NY, from August 9 to December 10, 2020. Women were eligible if they were 18 to 50 years old and <28 weeks of gestation. Upon enrollment, women completed surveys regarding concerns about COVID-19 illness and likelihood of getting COVID-19 vaccine if one were available during pregnancy. Vaccine acceptability was defined as a response of “very likely” or “somewhat likely” on a 4-point Likert

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scale. Factors associated with vaccine acceptability were assessed with multivariable logistic regression.

Results Of 939 pregnant women eligible for the main cohort study, 915 (97%) consented to participate. Among these 915 women, 39% self-identified as White, 23% Black, 33% Hispanic, and 4% Other. Sixty-two percent received an influenza vaccine last season. Seventy-two percent worried about getting sick with COVID-19. If they were to get sick, 92% worried about harm to their pregnancy and 80% about harm to themselves. Only 41% reported they would get a vaccine. Of women who were unlikely to get vaccinated, the most frequently cited concern was vaccine safety for their pregnancy (82%). Non-Hispanic Black and Hispanic women had lower odds of accepting a vaccine compared with non-Hispanic White women (adjusted odds ratios [aOR] 0.4, 95% CI 0.2–0.6 for both). Receipt of influenza vaccine during the previous season was associated with higher odds of vaccine acceptability (aOR 2.1, 95% CI 1.5–3.0).

Conclusion Although most pregnant women worried about COVID-19 illness, <50% were willing to get vaccinated during pregnancy. Racial and ethnic disparities in plans to accept COVID-19 vaccine highlight the need to prioritize strategies to address perceived barriers among groups at high risk for COVID-19. (Author)

2021-09843

The lethal effect of the second wave of COVID-19 on pregnant women: a matter of concern. Khoiwal K, Agarwal A, Mittal A, et al (2022), International Journal of Gynecology & Obstetrics vol 156, no 1, January 2022, pp 178-181

The lethal second wave of COVID-19 hit pregnant women terribly with regards to disease severity, requirement of invasive ventilation, and maternal mortality. (Author)

2021-09741

SARS-CoV-2 and hypertensive disease in pregnancy. Madden N, Emeruwa UN, Polin M, et al (2022), American Journal of Obstetrics & Gynecology MFM vol 4, no 1, January 2022, 100496

Correspondence piece aiming to evaluate differences in rates of hypertensive disorders of pregnancy (HDP) and hypertensive disease severity in SARS-CoV-2 patients. Results show that those with SARS-CoV-2 had significantly higher rates of HDP, including gestational hypertension and pre-eclampsia. (LDO)

Full URL: <https://doi.org/10.1016/j.ajogmf.2021.100496>

2021-09737

Neighborhood deprivation and preterm delivery during the coronavirus 2019 pandemic. Fisher SA, Sakowicz A, Barnard C, et al (2022), American Journal of Obstetrics & Gynecology MFM vol 4, no 1, January 2022, 100493

Background

Prior studies have reported decreases in preterm delivery (PTD) incidence during the coronavirus 2019 (COVID-19) pandemic, however findings are inconsistent. Given wide disparities in the pandemic's impact across communities, neighborhood deprivation may explain observed variation in the relationship between the COVID-19 pandemic and preterm delivery.

Objective

To characterize changes in the incidence of PTD during the COVID-19 pandemic with attention to effect modification introduced by neighborhood hardship.

Study Design

This retrospective cohort study included all pregnant patients who delivered at an urban tertiary care hospital during the pandemic (April–November 2020) or pre-pandemic (April–November 2019). We compared the incidence of PTD, spontaneous PTD, and medically indicated PTD prior to 37 weeks' gestation across epochs. Planned analyses stratified the cohorts by neighborhood deprivation metrics defined by residential zip code, including median neighborhood household income and hardship index (a composite index including dependency, educational attainment, unemployment, poverty, per capita income, and crowded housing). The Breslow-Day test for homogeneity assessed

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the association of delivery epoch and neighborhood deprivation with PTD outcome.

Results

Of 16,544 eligible deliveries, 8.7% occurred preterm. Incidences of PTD (8.4% vs. 9.0%, $p=0.17$), spontaneous PTD (5.0 vs 5.4%, $p=0.27$), and medically indicated PTD (3.2% v 3.5%, $p=0.47$) were similar between the pandemic and pre-pandemic epochs. However, PTD (OR 0.78, 95% CI 0.64-0.96) and spontaneous PTD (OR 0.76, 95% CI 0.59-0.99) decreased from the pre-pandemic to pandemic epoch in those living in neighborhoods <50th percentile for median income (Breslow-Day p -values 0.047 and 0.036, respectively). Similarly, PTD (OR 0.78, 95% CI 0.64-0.97) and spontaneous PTD (OR 0.74, 95% CI 0.57-0.98) decreased for those inhabiting neighborhoods in the highest-hardship quartile (Breslow-Day p -values 0.045 and 0.029, respectively).

Conclusion

Populations residing in socioeconomically disadvantaged neighborhoods experienced reductions in preterm delivery during the COVID-19 pandemic. Neighborhood-level social determinants of health offer insight into the complex etiologies that contribute to preterm delivery, and provide opportunities for public health, equity-focused prevention strategies. (Author)

Full URL: <https://doi.org/10.1016/j.ajogmf.2021.100493>

2021-09403

Worse Outcomes of Pregnancy in COVID-19 Infection during Parturition may be due to Referral Bias: Analysis in a Prospective Cohort of 963 pregnancies. Mohini, Ahmed S, Kasarla V, et al (2022), American Journal of Obstetrics & Gynecology (AJOG) vol 226, no 1, January 2022, pp 144-145.e3

Research letter analysing a prospective cohort of pregnancies to determine if high risk of severe COVID-19 in referral centres was confounded due to other risk factors. Results indicate that COVID-19 infection does not pose additional risk to pregnancy outcomes on its own. (LDO)

Full URL: <https://doi.org/10.1016/j.ajog.2021.08.058>

2021-09398

Increasing severity of COVID-19 in pregnancy with Delta (B.1.617.2) variant surge. Adhikari EH, SoRelle JA, McIntire DD, et al (2022), American Journal of Obstetrics & Gynecology (AJOG) vol 226, no 1, January 2022, pp 149-151

Research letter reporting trends in illness severity among obstetric patients with COVID-19 in the context of the Delta variant. Results indicate increasing rates of hospitalisation and morbidity and highlight the need for prevention measures such as vaccination. (LDO)

Full URL: <https://doi.org/10.1016/j.ajog.2021.09.008>

2021-08901

Coronavirus disease 2019 and pregnancy is déjà vu all over again. Rasmussen SA, Jamieson DJ (2022), BJOG: An International Journal of Obstetrics and Gynaecology vol 129, no 2, January 2022, pp 188-191

Commentary on public health emergencies in the last two decades including H1N1 influenza, Ebola virus, Zika virus, SARS and COVID-19. Highlights the need for strategies to address future emergencies and pandemics, particularly for vulnerable groups such as pregnant women. (LDO)

Full URL: <https://doi.org/10.1111/1471-0528.16859>

2021-07624

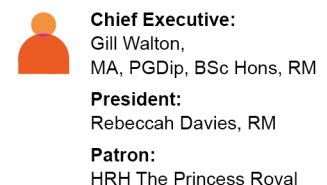
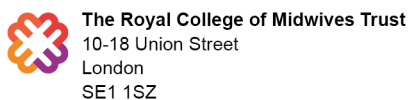
SARS-COV-2 infection during pregnancy and risk of preeclampsia: a systematic review and meta-analysis.

Conde-Agudelo A, Romero R (2022), American Journal of Obstetrics & Gynecology (AJOG) vol 226, no 1, January 2022, pp 68-89.e3

OBJECTIVE

To examine the relationship between severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection during

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pregnancy and the risk of preeclampsia.

DATA SOURCES

MEDLINE, EMBASE, POPLINE, CINAHL, LILACS, and WHO COVID-19, Chinese, and preprint databases (all from December 1, 2019 to May 31, 2021). Google Scholar, bibliographies, and conference proceedings were also searched.

STUDY ELIGIBILITY CRITERIA

Observational studies that assessed the association between SARS-CoV-2 infection during pregnancy and preeclampsia and that reported unadjusted and/or adjusted risk estimates and 95% confidence intervals (CIs) or data to calculate them.

STUDY APPRAISAL AND SYNTHESIS METHODS

The primary outcome was preeclampsia. Secondary outcomes included preeclampsia with severe features, preeclampsia without severe features, eclampsia, and the hemolysis, elevated liver enzymes, and low platelet count (HELLP) syndrome. Two reviewers independently reviewed studies for inclusion, assessed their risk of bias, and extracted data. Pooled unadjusted and adjusted odds ratios (ORs) with 95% CIs, and 95% prediction interval were calculated. Heterogeneity was quantified with the I² statistic, where I² ≥30% indicated substantial heterogeneity. Subgroup and sensitivity analyses were performed for testing the robustness of the overall findings.

RESULTS

Twenty-eight studies that included 790,954 pregnant women, among which 15,524 were diagnosed with SARS-CoV-2 infection, met the inclusion criteria. The meta-analysis of unadjusted ORs showed that the odds of developing preeclampsia were significantly higher among pregnant women with SARS-CoV-2 infection than among those without SARS-CoV-2 infection (7.0% vs 4.8%; pooled OR 1.62, 95% CI 1.45-1.82; P <0.00001; I²=17%; 26 studies; 95% prediction interval of the OR, 1.28-2.05). The meta-analysis of adjusted ORs also showed that SARS-CoV-2 infection during pregnancy was associated with a significant increase in the odds of preeclampsia (pooled OR 1.58, 95% CI 1.39-1.80; P <0.0001; I²=0%; 11 studies). There was a statistically significant increase in the odds of preeclampsia with severe features (OR 1.76, 95% CI 1.18-2.63; I²=58%; 7 studies), eclampsia (OR 1.97, 95% CI 1.01-3.84; I²=0%, 3 studies), and HELLP syndrome (OR 2.10, 95% CI 1.48-2.97; 1 study) among pregnant women with SARS-CoV-2 infection, as compared to those without the infection. Overall, the direction and magnitude of the effect of SARS-CoV-2 infection during pregnancy on preeclampsia was consistent across most pre-specified subgroup and sensitivity analyses. Both asymptomatic and symptomatic SARS-CoV-2 infections significantly increased the odds of preeclampsia although it was higher among patients with symptomatic illness (OR 2.11, 95% CI 1.59-2.81) than among those with asymptomatic illness (OR 1.59, 95% CI 1.21-2.10).


CONCLUSIONS

SARS-CoV-2 during pregnancy is associated with higher odds of preeclampsia. (Author)


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