

## **The Impact Of The Covid-19 Pandemic On Maternal And Preinatal Health – A systematic Research from databases**

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### **ABSTRACT:**

#### **Introduction:**

The Covid-19 epidemic has direct and indirect consequences on maternal health, and the direct and indirect effects are interwoven. We did a scoping assessment to provide a full understanding of this wide topic in a timely manner, as befitting an emerging pandemic.

#### **Methods:**

A scoping study was done to consolidate evidence on the pandemic's direct and indirect effects on maternal health, as well as to provide a summary of the most important outcomes to date. In order to capture rapidly evolving updates, working papers and news articles were considered appropriate evidence alongside peer-reviewed publications. If it related to the direct or indirect effects of the COVID-19 pandemic on the physical, emotional, economic, or social health and wellbeing of pregnant women, literature in English published between January 1st and September 11th 2020 was included. The authors wrote narrative summaries on the subject areas where they discovered the most evidence.

#### **Results:**

A total of 396 publications were found, with 95 of them being included in the analysis. Pregnant women were shown to have a higher likelihood of experiencing more severe symptoms than non-pregnant women. It seemed unlikely that intrauterine, vertical, or breastfeeding transmission would occur. COVID-19 positive individuals have different labour, birth, and breastfeeding protocols. There was a significant increase in maternal mental health disorders, such as clinically relevant anxiety and depression. Women were more likely than males to lose their jobs as a result of the epidemic, and working moms faced greater childcare duties.

#### **Conclusion:**

Pregnant women and mothers were not shown to be at a higher risk of COVID-19 infection than non-pregnant persons, but pregnant people with symptomatic COVID-19 may have more negative outcomes than non-pregnant people and appear to incur disproportionately negative socio-economic repercussions. High-income countries, as well as low- and middle-income countries, faced considerable challenges. More money should be spent on high-quality epidemiological investigations.

**Key Words:** Covid 19, pregnant women, maternal health, paternal health

### **INTRODUCTION:**

#### **1. DIRECT EFFECTS ON PREGNANCY**

During the coronavirus disease 2019 (COVID-19) pandemic, there are numerous unknown reasons for pregnant women. Pregnant women are now regarded potentially sensitive to severe SARS-CoV-2 infection based on clinical experience with pregnancies complicated by infection by other coronaviruses, such as Severe Acute Respiratory Syndrome (SARS) and Middle Eastern Respiratory Syndrome. The immune system, respiratory system, cardiovascular function, and coagulation are all affected by physiological changes during pregnancy. (1)

The clinical signs of COVID-19 in pregnant women were identical to those reported in China and the United States, according to a prospective research from the United Kingdom. Fever, cough, and dyspnoea were reported by pregnant women. Fever and cough were the most common symptoms, according to a recent systematic review (40 percent and 39 percent, respectively). When compared to non-pregnant women, pregnant and recently pregnant women were more likely to stay asymptomatic in this study of 11,432 women. Pregnant women are also less likely than non-pregnant women to report symptoms of fever and myalgia. Similarly, a systematic analysis of maternal outcomes found that pregnant women are less likely than adult non-pregnant

women to present with cough, sore throat, exhaustion, headaches, and diarrhoea. These findings imply that the symptoms of COVID-19 are similar in pregnant and non-pregnant women, but that asymptomatic disease is more common in pregnancy. (2)

People who are non-white, older, overweight, and/or have a pre-existing medical condition are more sensitive to severe disease caused by COVID-19, according to current evidence. Pregnant women with COVID-19 who have pre-existing medical disorders, such as diabetes or chronic high blood pressure, or who are non-white, older, or overweight, are also more likely to suffer serious health issues as a result of COVID-19, according to the current findings of this analysis.

When compared to non-pregnant women of reproductive age, pregnant or recently pregnant women with COVID-19 are more likely to be admitted to the intensive care unit or require respiratory support, according to the data.

COVID-19-positive pregnant women were also more likely to deliver birth preterm. The findings also suggest that one in every four kids born to women with COVID-19 was admitted to a neonatal unit, however there is no information on the reasons of preterm births or the indications for neonatal unit admission among these babies. Stillbirth and neonatal mortality rates, on the other hand, were low.

The extent to which SARS-CoV-2 is transmitted from mother to kid, whether in utero, intrapartum, or in the early postnatal period, is unknown at this time. WHO is aiming to improve our knowledge of SARS-CoV-2 vertical transmission and transmission time. (3)

COVID-19 can cause foetal distress, miscarriage, respiratory distress, and preterm delivery in pregnant women, but it does not infect neonates, according to an analysis of 13 final articles published in this field. There has been no evidence of vertical transmission during pregnancy, and clinical symptoms of COVID-19 in pregnant women are similar to those in non-pregnant women.

COVID-19-induced pneumonia is a highly contagious and infectious disease that the World Health Organization has proclaimed a public health emergency. Although the particular mode of illness transmission has yet to be defined, experts have discovered that the virus transmits by respiratory droplets in the same way that the flu does. Concerns have been raised concerning the coronavirus's intrauterine transfer from mother to foetus in pregnant women as the virus has spread. One of the top causes of pregnancy-related fatalities globally is viral pneumonia. (4)

People experience major physiologic and immunologic changes during pregnancy in order to nourish and protect the developing foetus. These alterations may raise the risk of respiratory virus infection in pregnant women and their foetuses. As a result, pregnant women and their children may be more susceptible to SARS-CoV-2 infection. (5)

COVID-19 causes more disease and death in pregnant Black and Hispanic women than in other pregnant women, but this is not due to biology. Women of colour, particularly black and Hispanic women, are more likely to encounter social, physical, and economic disparities that put them at risk for illness. (6)

A disproportionate number of deaths were caused by non-Hispanic black people. Symptoms in pregnant women were similar to those in non-pregnant women (e.g., cough, headache, muscle aches, and fever), albeit most symptoms were reported less frequently in pregnant women than in non-pregnant women. (7)

## **2. INTRA UTERINE TRANSMISSION**

The most solid evidence of COVID-19 transmission during pregnancy would be confirmation of SARS-CoV-2 replication in foetal pulmonary tissues, but this is logistically impossible. In practise, testing for the presence of the virus in placental, amniotic fluid, cord blood, and other tissues is used to determine whether an intrauterine viral infection has occurred pharyngeal swab from new-borns It is critical to underline that all of these samples must be collected aseptically as soon as possible following birth (8). Chen et al. (9) examined matched placental tissues and new-born pharyngeal swab samples from three pregnant women with confirmed COVID-19 in the third trimester to assess the risk of intrauterine vertical transmission, and all samples tested negative for SARS-CoV-2 RNA. Notably, a neonate born to a pregnant woman with COVID-19 tested positive for SARS-CoV-2 RNA in a pharyngeal swab sample taken 36 hours after birth, but qRT-PCR testing of placental and cord-blood samples revealed that SARS-CoV-2 was not present, implying that intrauterine vertical transmission did not occur (10,11). In women with COVID-19 in the late third trimester, there is currently no evidence of intrauterine infection caused by vertical transmission, based on available data.

Few studies have looked at the impact of SARS-CoV-2 infection in the womb; because pathogen detection needs numerous samples, foetal infection has been difficult to characterise (12,13). Congenital SARS-CoV-2 infection can be confirmed by PCR of placental tissue, according to Shah et al. (14). We identified multifocal chronic histiocytic intervillitis in the placenta using immune histochemical staining with CD68 antibodies. COVID-19 (15,16) Other pregnant women with this illness were also discovered to have this condition. Microglial hyperplasia, a moderate lymphocytic infiltration, and skeletal muscle oedema were also seen. These findings could point to an illness. SARS-CoV-2 RNA was found in none of the foetal tissue samples. Intrauterine hypoxia could have produced some of the other findings.

COVID-19 is linked to cytokine storm, an inflammatory reaction that is often suggestive of illness severity (17). Excessive inflammation may produce endothelial damage and coagulation system disruption; some evidence suggests that thrombotic and microvascular injury may influence COVID-19 symptoms (18,19). Although the patient's blood pressure was within normal ranges, her age and history of prenatal hypertension were risk factors for such changes, and placental insufficiency and foetal death were the most likely causes (20). We also found multifocal tiny intervillous thrombi and focal foetal placental vascular thrombosis. As a result, the magnitude and apparent speed with which these data developed suggests that infection played a role in vascular injury. We found 51 studies that included 336 babies that were tested for COVID-19. Only 15 (4.4 percent) of the 336 neonates tested positive for COVID-19 by throat swab RT-PCR. Caesarean sections were performed on all infants who had a positive throat swab RT-PCR. Only five (33.3 percent) of new-borns with SARS-CoV-2 positive throat swabs had concomitant placenta, amniotic fluid, and cord blood samples examined, with only one amniotic fluid sample RT PCR positive. Five neonates tested positive for IgG and IgM, but no intrauterine tissue was found. Chest imaging in four new-borns revealed COVID-19 pneumonia.

Shah et al. have described a classification scheme for SARS-CoV-2 infection in pregnant women, fetuses, and new-borns. 10 As probable evidence of congenital SARS-CoV-2, placental PCR swabs and new-born nasopharyngeal swabs at birth are included in this categorization. Ultrastructural demonstration of coronavirus particles or immune histochemical detection of SARS-CoV-2 in the placenta are not taken into account. However, given the immune histochemical and ultrastructural evidence of SARS-CoV-2 infection in the foetal cells of the placenta, the infant described here indicates congenital infection, a criterion that we believe should be included to the categorization system to confirm intrauterine transmission.

Due to contamination with maternal infectious material or temporary viremia, a baby may meet one or more of the early exposure criteria, as well as one or more of the persistence criteria, due to intrapartum or early postpartum infection with a very short incubation period. In addition, IgM antibodies can be produced as soon as 3 days following the onset of symptoms (21,22), but it might take up to 2 weeks (23). Intrauterine transmission that occurs late in pregnancy may result in a false-negative result in the first seven days of life, but intrapartum infection may result in a positive result by day seven. (24) Finally, our current understanding of IgM dynamics is based on adult data, and if neonatal IgM data becomes available, it will be revisited. For prematurely born neonates with limited ability to produce IgM, this definition will most likely have lower sensitivity. (25)

### **3. LABOR AND DELIVERY**

We found a low frequency of COVID-19 infection among asymptomatic pregnant women coming for admission to the labour and delivery units in a large hospital system in metropolitan Boston. Despite similar case counts per capita, the rate of asymptomatic infection among women admitted to labour and delivery units in Greater Boston was significantly lower than that of New York City. Notably, our population's 1%–2% incidence of asymptomatic infection more closely resembles asymptomatic infection rates in other places. (26,27) Several theories may explain the lower prevalence of asymptomatic infection in Boston compared to New York City: (i) we began testing >30 days after the state issued physical distancing orders, thus sampling at a time when community transmission was declining; (ii) the overall population density of greater Boston is lower than New York City, possibly leading to less community-based transmission; and (iii) the overall population density of greater Boston is lower than New York City, possibly leading to less community-based transmission.

When evaluating community-based COVID-19 prevalence rates, it's important to consider the probability of disease clustering where a community is on the pandemic curve, as well as the status of concurrent mitigation initiatives. As a result, these data could help inform decisions regarding whether to use mitigation or containment measures, as well as when to resume both healthcare and non-healthcare operations. (28)

Furthermore, evaluating the asymptomatic obstetric population provides a window into the community's infection prevalence, which can help determine when, where, and how to strengthen vs loosen social distancing measures. When evaluating community-based COVID-19 prevalence rates, it's important to consider the

probability of disease clustering where a community is on the pandemic curve, as well as the status of concurrent mitigation initiatives. As a result, these data could help inform decisions regarding whether to use mitigation or containment measures, as well as when to resume both healthcare and non-healthcare operations. A trial period of universal testing, on the other hand, could assist assess whether such an approach is appropriate for a certain labour and delivery unit. The COVID-19 pandemic is still going on, and testing techniques may change as testing capabilities improve and the pandemic's natural history unfolds. Though universal testing on our obstetric unit did not generate enough positive results to support further testing at this time, our approach may alter if local infection rates rise. (29)

Positive SARS-CoV-2 tests in pregnant women were linked to a higher prevalence of preeclampsia and a lower prevalence of induction of labour. COVID-19 is primarily a lung infection, but it can also cause systemic symptoms similar to preeclampsia. (30) The lack of an increased prevalence of preterm birth agrees with the findings of two prior investigations that included comparators. (31,32) The lack of variation in Apgar scores and birth weight for gestational age between groups is identical to what was found in a study conducted in the United States. (32)

COVID-19 is less severe in pregnancy than the two prior coronavirus infections: severe acute respiratory syndrome-related coronavirus (SARS) and Middle East respiratory syndrome-related coronavirus, according to other accumulating data (MERS). Nonetheless, there have been reports of pregnant women requiring critical care, as well as reports of both mother and new-born deaths linked to COVID-19. (33)

Our experience also suggests using proactive diagnostic management when admitting women for birth, as this ensures the safety of the woman's child, family members, other patients, and medical personnel. However, during the pandemic's remission phase, novel diagnostic procedures for pregnant women, such as those based on serological tests, should be examined. When virus titers and RT-PCR sensitivity decline, these tests can be employed as an adjuvant technique to detect SARS-CoV-2 (34). This could be useful in determining which women were infected with SARS-CoV-2 during pregnancy so that their new-borns could be monitored, as it is still unknown whether there is a risk of vertical transmission and what the long-term repercussions are (35).

Finally, the rate of positive results in asymptomatic women when global qRT-PCR screening for SARS-CoV-2 is used at admission to labour – and thus the efficacy of this technique – is determined by the number of new cases in the community. As a result, care is advised when interpreting our findings in places where COVID-19 prevalence is different.

#### **4. BREAST FEEDING AND INFANT CONTACT**

Breastfeeding is essential for the survival, nourishment, and growth of infants and young children, as well as maternal health. Exclusive nursing for the first six months of life is recommended by the World Health Organization, followed by continuing breastfeeding with appropriate supplemental foods for up to two years and beyond. WHO recommends early and uninterrupted skin-to-skin contact, rooming-in, and kangaroo mother care to promote new born survival and minimise morbidity (36)

Pregnant women and new-borns are given special care, and there is growing concern about the risk of SARS-COV-2 vertical transmission (from mother to foetus) or associated malformations, as well as contagion during delivery and breastfeeding; it is also important to determine the potential negative effects of COVID-19 in pregnant women (37–38). **4.1**

##### **Methods**

- A living systematic review of evidence was conducted, with the most recent search completed on May 15, 2020, to identify studies involving mothers with suspected or confirmed COVID-19 and their infants or young children, following the procedures outlined in the Cochrane handbook for systematic reviews of interventions. (39). The Cochrane Library, EMBASE (OVID), PubMed (MEDLINE), Web of Science Core Collection (Clarivate Analytics), and the WHO Global Database were all used in the search. After deleting duplicates, 6945 records were screened, and 153 records with mother-infant dyads in which the woman had COVID-19 were included in the full-text review.

#### **5. MENTAL HEALTH**

Despite its clinical utility, self-isolation and quarantine frequently have unanticipated negative consequences (43), such as increased distress, anxiety, despair, and post-traumatic stress disorder (PTSD). Published research

assessing rates of anxiety and depression in the present COVID-19 pandemic consistently find prevalence values of around 20% (44,45,46).

## **6. PRENATAL AND POST NATAL CARE**

The UK government designated pregnant women as a "vulnerable" group on March 16, 2020. This was based on what was known about the impact of the previous SARS pandemic on pregnancy outcomes (56), as well as worries that changes in pregnant women's immune systems predisposed them to more severe respiratory symptoms if they were infected with COVID-19. Pregnant women were urged to follow self-isolation and social distancing guidelines, with those at the highest risk due to pre-existing health problems or in the third trimester of pregnancy being advised to follow the guidelines even more strictly (57). COVID-19 case studies and case series in pregnant women revealed that they were not at higher risk of more severe symptoms than the general population, with no apparent elevated risk of early miscarriage or pre-term birth (58)

### **6.1 Current advice for postnatal care provision**

The RCOG's (59) regularly updated information incorporates evidence as the pandemic progresses. Antenatal and postnatal care are vital services to keep women and infants safe, according to general guidance for health professionals and maternity providers (60). Although particular information is not included, postnatal services advice is confined to new-born care, the necessity of not separating mothers and infants if infection is suspected, and assistance for breastfeeding (61). Breastfeeding mothers with COVID-19 infections have a limited amount of data to back them up. According to current NHS advice, women should continue to breastfeed their children (62), because the advantages outweigh the hazards, but it's unclear whether hygiene methods for women with COVID-19 infections should be altered, or whether pharmaceutical effects on breast milk safety should be considered.

Individualising postnatal care in line with relevant NICE guidance (62), according to RCOG guidance for antenatal and postnatal contacts (63), but women should be contacted at one, five, and ten days, face-to-face or remotely via telephone or online platforms, with face-to-face visits prioritised for women following operative birth or with additional complexity. Although postnatal contacts and maternal health factors are not addressed, WHO guidance relates to ensuring women continue to get high-quality care during and after their pregnancy (63). Some official sources, such as Scottish Government advice, provide more specific information on infant feeding (64) However, postpartum mother health is rarely discussed.

### **6.2 Planning postnatal care during the pandemic**

Given the existing situation, we must evaluate ways to reduce the risk of maternal morbidity in the long term. If women "dropped through the gaps" due to poor postnatal care prior to the pandemic (64), it is critical that health inequities or unequal consequences on certain groups of women are not exacerbated as a result of the pandemic's inability to satisfy their needs.

### **6.3 Maintaining vigilance**

In the short run, we need to collect data on hospital admissions for detected COVID-19 infection and community-based cases among postnatal women, as well as make improvements that need little system support, such as scheduling contacts based on need and strengthening communication pathways. Longer term, we'll need evidence of effective interventions to support a comprehensive package of care that assesses and addresses the physical and psychological requirements of all postpartum women, as well as robust data gathering methods to track outcomes. The changing health profile of women has consequences for how midwives, obstetricians, and general practitioners are trained to effectively manage women who are pregnant with medically and/or socially complex pregnancies.

The NHS was able to respond to the epidemic and protect women, families, and healthcare professionals because to the restructuring of maternity services. We must examine both positive and negative outcomes. In the future, restructured care in response to the pandemic, such as the use of remote postnatal contacts, could make better use of women's time and resources, although this is unlikely to suit everyone or meet all demands. Because present postnatal care provision and content do not take advantage of chances to improve maternal health (66), it is difficult to know if or how UK maternity services can best support women in the future if we do not analyse the effects of adjustments made during the epidemic. We can't afford to overlook postnatal care.

## **7. HEALTH INFRASTRUCTURE OF COVID-19 ON PREGNANT WOMEN**

### **COVID-19's Impact on Pregnant Women**

COVID-19 symptoms in pregnant women should be reported to their doctors as soon as possible. Do not be alarmed if you are tested for the coronavirus and it is discovered that you have it.

“We can cure COVID-19 during pregnancy,” Sheffield claims. “Several of the current drugs are also utilised for our pregnant ladies, and early studies have shown that they can be beneficial.”

The American College of Obstetricians and Gynecologists and the Society of Maternal-Fetal Medicine collaborated with national and international experts to provide recommendations for doctors dealing with pregnant women who are suspected of having COVID-19 or who have been confirmed with the disease. These suggestions are based on data from the first few months of the coronavirus pandemic and will be updated when new information about the virus becomes available. On September 25, 2020, [report](#) from the United States of America Researchers from the Centers for Disease Control and Prevention reported the birth outcomes of 598 pregnant women who tested positive for COVID-19.

“However, we are aware that high fevers during pregnancy, particularly in the first trimester, can increase the chance of birth abnormalities. That is why we advise our patients to take precautions against any illness that creates a fever, such as the flu.” (67)

### **7.1 GUIDANCE FOR MANAGEMENT OF PREGNANT WOMEN IN COVID PANDEMIC**

Appropriate isolation of pregnant patients with confirmed COVID-19 or who are Persons Under Investigation should be considered by obstetric units. All healthcare professionals should get basic and refresher training on infection control techniques, as well as how to use and handle Personal Protective Equipment (PPE) (preferably by a video presentation)

PPE supplies that are sufficient and appropriate are available at all points of care.

### **7.2 Considerations for Obstetric Management**

When necessary, foetal and uterine contraction monitoring based on gestational age is performed. Delivery plans tailored to the individual A multispecialty, team-based strategy that may include consultation with obstetricians, maternal-fetal medicine specialists, infectious disease specialists, pulmonary-critical care specialists, and paediatric specialists as needed.

In general, pregnant patients with COVID-19 should receive the same treatment as non-pregnant patients. Because of potential safety concerns, the COVID-19 Treatment Guidelines Panel advises against withholding treatment for COVID-19 and SARS-CoV-2 immunisation from pregnant or nursing women (AIII). See the section on treatment recommendations and pregnant issues for further information General Management of Non hospitalized Patients with Acute COVID-19 and the individual drug sections.

Pregnant women should be informed about the increased risk of severe disease caused by SARS-CoV-2, as well as the precautions they can take to protect themselves and their children (68). Physical separation, hand cleaning, and wearing a face covering are all examples of these procedures (if indicated). If the patient has not been vaccinated, they should be advised to wear a face mask and get vaccinated against the SARS-CoV-2 virus. The Centres for Disease Control and Prevention (CDC), the American College of Obstetricians and Gynecologists (ACOG), and the Society for Maternal-Fetal Medicine (SMFM) all stress the necessity of getting prenatal care. The American College of Obstetricians and Gynecologists (ACOG) provides a frequently asked questions When suitable, telehealth can be used to deliver antenatal care (68)

ACOG has developed an algorithm to assess and treat pregnant outpatients with SARS-CoV-2 infection, whether suspected or proven in the lab. SARS-CoV-2 infection in pregnant patients can develop as asymptomatic/presymptomatic disease or a wide range of clinical presentations, ranging from mild symptoms that can be managed at home with supportive treatment to severe disease and respiratory failure that necessitates ICU hospitalisation. Pregnant individuals having symptoms that are compatible with COVID-19 should have their illness severity, underlying comorbidities, and clinical status evaluated, just like other patients, to see if an in-person evaluation for possible hospitalisation is necessary. (68)

In general, the COVID-19 management recommendations for non-pregnant patients also apply to pregnant patients. (68)

In pregnant women with COVID-19, the use of anti-SARS-CoV-2 monoclonal antibodies should be investigated, especially if they have additional risk factors for severe disease. There is no data on the use of

monoclonal antibodies during pregnancy; however, other immunoglobulin G products have been used successfully throughout pregnancy when appropriate. As a result, these products should not be avoided during pregnancy.

Most SARS-CoV-2-related clinical trials have so far excluded pregnant and lactating women; in those studies, that have included lactating and pregnant women, only a small number have been included. Because of this limitation, making evidence-based recommendations on the use of SARS-CoV-2 medicines in these vulnerable patients is challenging, and their COVID-19 therapy options may be limited. Pregnant and breastfeeding women should not be excluded from clinical studies of SARS-CoV-2 infection therapeutics or vaccinations if at all possible. (68)

Casirivimab 600 mg plus imdevimab 600 mg is the approved dosage, which is given as four subcutaneous (SQ) injections (2.5 mL each) at four distinct sites, or as a single intravenous (IV) infusion (for a list individual who are considered to be at high risk of progressing to severe COVID-19, see the FDA EUA). Casirivimab in combination with imdevimab should be given as soon as feasible following exposure (72)

### **7.3 Obstetric management**

COVID-19 infection that is mild or asymptomatic is not a reason to deliver. Inducing early term labour in individuals with moderate symptoms and no other reason to deliver is not supported by evidence. Although previous research revealed that COVID-19 patients had a greater risk of preterm birth, (69) these data could be skewed by the inclusion of people who had severe pneumonia and needed hospitalisation. Except in patients with severe or critical disease, there does not appear to be a risk of unfavourable pregnancy outcomes such as preterm birth. (70)

Only if enough maternal oxygen and respiratory support had been supplied could delivery for maternal indication be considered in individuals with preterm gestations. Gestational age, foetal monitoring capability, and a discussion of potential advantages against hazards are all factors to consider during delivery. When it comes to delivery time in COVID-19-positive pregnant women, the SMFM offers advice (71)

In a critically ill patient, delivery does not always improve maternal ventilation or prognosis, therefore the focus is on maintaining adequate respiratory support with periodic reassessment for clinical deterioration as long as foetal status is stable. If maximal non-invasive assistance fails to improve and intubation with urgent proning is required, delivery should be planned for pregnancies at or near term and considered for any patient in the third trimester. (72)

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## **8. GENDER EQUITY IN WORK FORCE DURING COVID-19**

We can already see that the pandemic and its economic consequences are having a regressive effect on gender equality as COVID-19 continues to affect lives and livelihoods around the world. Women's jobs are 1.8 times more exposed to the crisis than men's jobs, according to our calculations. Women make approximately 39% of worldwide employment, but they are responsible for 54% of job losses. The fact that the virus is dramatically increasing the burden of unpaid care, which is disproportionately handled by women, is one reason for this larger effect on women. This, among other things, means that women's employment is declining at a quicker rate than men's, despite the fact that women and men work in different industries.

### **8.1 Women are more vulnerable to COVID-19-related economic effects because of existing gender inequalities**

Prior to COVID-19, women made up 20% of the workforce in India; their share of job losses due to industry mix alone is estimated to be 17%, but unemployment surveys imply that they account for 23% of overall job

losses. According to our research, the gendered structure of labour across industries accounts for one-fourth of the variation in job-loss rates between men and women. The rest is explained by a lack of systemic progress in removing other cultural barriers to women.

In both mature and emerging economies, the nature of employment remains highly gender specific: women and men (73). As a result, the gender implications of the pandemic are shaped: our analysis demonstrates that female jobs are 19 percent more at risk than male jobs merely because women are disproportionately represented in the COVID-19 crisis-affected industries. Given the industries in which men and women work, we estimate that 4.5 percent of women's jobs are at risk globally as a result of the pandemic, compared to 3.8 percent of men's jobs.

COVID-19 has increased the amount of time women spend on family tasks disproportionately. (76) According to one report, and (76) it is unsurprising that women have left the workforce at a higher rate than could be explained solely by labour market characteristics.

## **8.2 Fewer women than men will regain employment during the COVID-19 recovery says ILO**

GENEVA (International Labor Organization) — According to the International Labour Organization, inequalities between men and women in the workplace would endure in the foreseeable future, aggravated by the COVID-19 pandemic (ILO).

According to a recent policy brief, women would have 13 million fewer jobs in 2021 than in 2019, while men's jobs will have rebounded to 2019 levels. Even while women's predicted job growth in 2021 is higher than men's, it will be insufficient to return women to pre-pandemic employment levels.

In 2021, just 43.2 percent of working-age women in the world will be employed, compared to 68.6 percent of working-age men.

Because of their over-representation in the hardest-hit sectors, such as lodging and food services and manufacturing, women have suffered disproportionate employment and income losses, according to the ILO brief (78).

The brief underscores that “building ahead fairer” involves prioritising gender equality in the recovery effort and implementing gender-responsive policies. These are some of them:

- Investing in the care economy because the health, social work, and education sectors are major job creators, particularly for women, and because care leave regulations and flexible working arrangements can help women and men divide labour at home more evenly.
- Working to ensure that everyone has access to complete, adequate, and long-term social protection in order to close the gender gap in social protection coverage.
- Advancing the principle of equal pay for equal effort.
- Workplace violence and harassment must be eliminated. During the pandemic, domestic violence and work-related gender-based abuse and harassment increased, severely jeopardising women's ability to work for a living.
- Women's participation in decision-making bodies, social discussion, and social partner institutions should be encouraged.

## **9. DOMESTIC VIOLENCE**

Abuse of any kind, whether it's emotional or physical, is never acceptable. Unfortunately, some women are abused by their partners. Abuse does not discriminate on the basis of race, ethnicity, or economic status. Abuse is more likely to worsen during pregnancy. According to the American College of Obstetricians and Gynecologists (commonly known as ACOG), one out of every six battered women is abused while pregnant. Every year, about 320,000 women are assaulted by their spouses while pregnant. (79)

In this country, one in every four women has been subjected to physical violence by an intimate relationship. And that was before the COVID-19 pandemic created household hothouses for extra potential abuse owing to fear about job losses, unattended children, and financial difficulties.

“Then, as a result of this violence, the children of women who have experienced it are also at a disadvantage — and this disadvantage may affect them throughout their lives, even into the lives of their own children.” (80)

## **Result**



Breastmilk samples from 46 mother-infant dyads were tested for COVID-19. COVID-19 was found in all of the moms, and 13 of the infants tested positive. Breastmilk samples from 43 women tested negative for the COVID-19 virus by RT-PCR, while samples from three moms tested positive. One new-born tested positive for COVID-19 among the three infants whose mothers' breastmilk tested positive for viral RNA particles, not live virus, however infant feeding practises were not documented. The other two babies tested negative for COVID-19; one was nursed, and the other was provided expressed breast milk once viral RNA particles were no longer detectable. (40) In the case of the single child infected with COVID-19, it was unclear whether the infant was infected through breastfeeding or a droplet from intimate contact with the sick mother. In a preprint publication, secretory immunoglobulin A (sIgA) immune response to the COVID-19 virus was observed in 12 of 15 breastmilk samples from moms who had the virus (40)

“The enormous benefits of nursing far outweigh the potential dangers of disease caused by the virus,” they said (41)

### **CONCLUSION:**

While more thorough research is needed, early evidence from this scoping assessment suggests that many of the social and economic effects of the COVID-19 situation would disproportionately affect women. The low risk of transfer from mother to kid in pregnancy or through breast milk is clearly known. Pregnancy appears to be a particularly sensitive time for COVID-19, but this has to be confirmed further by well-designed and implemented study. During the pandemic, there is a higher risk of distress and psychological issues during pregnancy and afterward, although high-quality evidence is absent in this situation as well. Similarly, while an increase in the occurrence of domestic violence is conceivable and confirmed by various research, more representative data is needed. There are also no studies on maternal morbidity and mortality. The health effects of SARS-CoV-2 infection during pregnancy, as well as changes in health care provision and accessibility and their impact on maternal health, must be documented in rigorous epidemiological research. This review, on the other hand, shows that moms with children are more likely than men and women without children to lose their jobs and income during the epidemic. Food insecurity is more likely to affect single mothers in particular. Many high- and low-income countries have similar socioeconomic repercussions for women.

### **REFERENCES:**

1. <https://journals.physiology.org/doi/full/10.1152/physrev.00024.2020>
2. Allotey J., Stallings E., Bonet M., Yap M., Chatterjee S., Kew T. Clinical manifestations, risk factors, and maternal and perinatal outcomes of coronavirus disease 2019 in pregnancy: living systematic review and meta-analysis. *BMJ*. 2020;370:m3320. doi: 10.1136/bmj.m3320. [PMC free article][PubMed] [CrossRef] [Google Scholar]
3. <https://www.who.int/news/item/01-09-2020-increasing-understanding-of-the-impact-of-covid-19-for-pregnant-women-and-their-babies>
4. Organization WH. Novel coronavirus situation report -2.[January 22, 2020]. Available from: <https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200122-sitrep-2019-ncov.pdf> (Accessed on January 23, 2020)
5. Muralidar S, Ambi SV, Sekaran S, Krishnan UM. The emergence of COVID-19 as a global pandemic: Understanding the epidemiology, immune response and potential. <https://doi.org/10.1016/j.biochi.2020.09.018>.  
**CAS Article PubMed PubMed Central Google Scholar**
6. <https://www.acog.org/womens-health/faqs/coronavirus-covid-19-pregnancy-and-breastfeeding>
7. Zambrano LD, Ellington S, Strid P, et al. Update: characteristics of symptomatic women of reproductive age with laboratory-confirmed SARS-CoV-2 infection by pregnancy status—United States, January 22–October 3, 2020. *MMWR Morb Mortal Wkly Rep*. 2020;69(44):1641–1647. [PubMed](#) [Google Scholar](#) [Crossref](#)
8. Chen H, Guo J, Wang C, Luo F, Yu X, Zhang W, Li J, Zhao D, Xu D, Gong Q, Liao J, Yang H, Hou W, Zhang Y. Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: a retrospective review of medical records. *Lancet* 2020; **395**: 809– 815
9. Chen S, Huang B, Luo D, Li X, Yang F, Zhao Y, Nie X, Huang BX. Pregnant women with new coronavirus infection: a clinical characteristics and placental pathological analysis of three cases. *Zhonghua Bing Li Xue Za Zhi* 2020; **49**: E005.

10. Yu N, Li W, Kang Q, Xiong Z, Wang S, Lin X, Liu Y, Xiao J, Liu H, Deng D, Chen S, Zeng W, Feng L, Wu J. Clinical features and obstetric and neonatal outcomes of pregnant patients with COVID-19 in Wuhan, China: a retrospective, single-centre, descriptive study. *Lancet Infect Dis* 2020. DOI: [10.1016/S1473-3099\(20\)30176-6](https://doi.org/10.1016/S1473-3099(20)30176-6).
11. Wang S, Guo L, Chen L, Liu W, Cao Y, Zhang J, Feng L. A case report of neonatal COVID-19 infection in China. *Clin Infect Dis* 2020. DOI: [10.1093/cid/ciaa225](https://doi.org/10.1093/cid/ciaa225)
12. Alzamora MC, Paredes T, Caceres D, Webb CM, Valdez LM, La Rosa M. Severe COVID-19 during pregnancy and possible vertical transmission. *Am J Perinatol*. 2020; 37:861–5. [DOIExternal LinkPubMedExternal Link](#)
13. Kirtsman M, Diambomba Y, Poutanen SM, Malinowski AK, Vlachodimitropoulou E, Parks WT, et al. Probable congenital SARS-CoV-2 infection in a neonate born to a woman with active SARS-CoV-2 infection. *CMAJ*. 2020;192:E647–50. [DOIExternal LinkPubMedExternal Link](#)
14. Shah PS, Diambomba Y, Acharya G, Morris SK, Bitnun A. Classification system and case definition for SARS-CoV-2 infection in pregnant women, fetuses, and neonates. *Acta Obstet Gynecol Scand*. 2020;99:565–8. [DOIExternal LinkPubMedExternal Link](#)
15. Sisman J, Jaleel MA, Moreno W, Rajaram V, Collins RRJ, Savani RC, et al. Intrauterine transmission of SARS-CoV-2 infection in a preterm infant. *Pediatr Infect Dis J*. 2020;39:e265–7.
16. Vivanti AJ, VauloupFellous C, Prevot S, Zupan V, Suffee C, Do Cao J, et al. Transplacental transmission of SARS-CoV-2 infection. *Nat Commun*. 2020;11:3572. [DOIExternal LinkPubMedExternal Link](#)
17. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. [Erratum in: *Lancet*. 2020;395:496]. *Lancet*. 2020;395:497–506. [DOIExternal LinkPubMedExternal Link](#)
18. Nagashima S, Mendes MC, Camargo Martins AP, Borges NH, Godoy TM, Miggiolaro AFRDS, et al. Endothelial dysfunction and thrombosis in patients with COVID-19—brief report. *Arterioscler Thromb Vasc Biol*. 2020;40:2404–7. [DOIExternal LinkPubMedExternal Link](#)
19. Benhamou D, Keita H, DucloyBouthors AS, Benhamou D, Bonnet MP, Bonnin M, et al.; Obstetric Anaesthesia and Critical Care Club Working Group. Coagulation changes and thromboembolic risk in COVID-19 obstetric patients. *Anaesth Crit Care Pain Med*. 2020;39:351–3. [DOIExternal LinkPubMedExternal Link](#)
20. Shanes ED, Mithal LB, Otero S, Azad HA, Miller ES, Goldstein JA. Placental Pathology in COVID-19. *Am J Clin Pathol*. 2020;154:23–32. [DOIExternal LinkPubMedExternal Link](#)
21. Dong L, Tian J, He S. , et al. [Possible vertical transmission of SARS-CoV-2 from an infected mother to her newborn](#). *JAMA* 2020
22. Zeng H, Xu C, Fan J. , et al. [Antibodies in infants born to mothers with COVID-19 pneumonia](#). *JAMA* 2020; 323 (18) 1848-1849
23. Li G, Chen X, Xu A. [Profile of specific antibodies to the SARS-associated coronavirus](#). *N Engl J Med* 2003; 349 (05) 508-509
24. Kimberlin DW, Stagno S. [Can SARS-CoV-2 infection be acquired in utero?: More definitive evidence is needed](#). *JAMA* 2020 (e-pub ahead of print). Doi: [10.1001/jama.2020.4868](https://doi.org/10.1001/jama.2020.4868)
25. Ballow M, Cates KL, Rowe JC, Goetz C, Desbonnet C. [Development of the immune system in very low birth weight \(less than 1500 g\) premature infants: concentrations of plasma immunoglobulins and patterns of infections](#). *Pediatr Res* 1986; 20 (09) 899-904
26. Ng, O-T, Marimuthu, K, Chia, P-Y, et al. SARS-CoV-2 infection among travelers returning from Wuhan, China. *N Engl J Med* 2020;382:1476–1478. [CrossRefGoogle ScholarPubMed](#)

- 27.Hoehl, S, Rabenau, H, Berger, A, et al.Evidence of SARS-CoV-2 infection in returning travelers from Wuhan, China. *N Engl J Med* 2020;382:1278–1280.[CrossRef](#)[Google Scholar](#)[PubMed](#)
28. NYC Health. Covid-19: data. Available at: <https://www1.nyc.gov/site/doh/covid/covid-19-data.page>. Retrieved April 20, 2020.
29. Johns Hopkins University & Medicine Coronavirus Resource Center. COVID-19 United States cases by county. Available at: <https://coronavirus.jhu.edu/us-map>. Retrieved April 15, 2020.
- 30.Mendoza M, Garcia-Ruiz I, Maiz N, et al. Pre-eclampsia-like syndrome induced by severe COVID-19: a prospective observational study. *BJOG*. 2020;127(11):1374-1380. doi:[10.1111/1471-0528.16339](https://doi.org/10.1111/1471-0528.16339)[PubMed](#)[Google Scholar](#)[Crossref](#)
- 31.Prabhu M, Cagino K, Matthews KC, et al. Pregnancy and postpartum outcomes in a universally tested population for SARS-CoV-2 in New York City: a prospective cohort study. *BJOG*. Published online July 7, 2020. doi:[10.1111/1471-0528.16403](https://doi.org/10.1111/1471-0528.16403)[PubMed](#)[Google Scholar](#)
- 32.Khalil A, von Dadelszen P, Draycott T, Ugwumadu A, O'Brien P, Magee L. Change in the incidence of stillbirth and preterm delivery during the COVID-19 pandemic. *JAMA*. 2020;324(7):705-706. doi:[10.1001/jama.2020.12746](https://doi.org/10.1001/jama.2020.12746)  
[Article](#)[PubMed](#)[Google Scholar](#)[Crossref](#)
- 33.Delahoy MJ, Whitaker M, O'Halloran A, et al. Characteristics and maternal and birth outcomes of hospitalized pregnant women with laboratory-confirmed COVID-19: COVID-NET, 13 states, March 1–August 22, 2020. *MMWR Morb Mortal Wkly Rep*. Published online September 16, 2020. doi:[10.15585/mmwr.mm6938e1](https://doi.org/10.15585/mmwr.mm6938e1)
34. Guo, L, Ren, L, Yang, S, Xiao, M, Chang, D, Yang, F, et al. Profiling early humoral response to diagnose novel coronavirus disease (COVID-19). *Clin Infect Dis* 2020. <https://doi.org/10.1093/cid/ciaa310> [Epub ahead of print]. [Search in Google Scholar](#)
35. Lamouroux, A, Attie-Bitach, T, Martinovic, J, Leruez-Ville, M, Ville, Y. Evidence for and against vertical transmission for SARS-CoV-2 (COVID-19). *Am J Obstet Gynecol* 2020. <https://doi.org/10.1016/j.ajog.2020.04.039> [Epub ahead of print]. [Search in Google Scholar](#)
- 36.<https://www.who.int/news-room/commentaries/detail/breastfeeding-and-covid-19>World Health Organization, UNICEF. Global Strategy for Infant and Young Child Feeding. Geneva, Switzerland: World Health Organization; 2003.
37. Qiao J. What are the risks of COVID-19 infection in pregnant women? *Lancet*. (2020) 395:760–2. 10.1016/S0140-6736(20)30365-2 [[PMC free article](#)] [[PubMed](#)] [[CrossRef](#)] [[Google Scholar](#)]
38. Rasmussen SA, Smulian JC, Lednický JA, Wen TS, Jamieson DJ. Coronavirus Disease 2019 (COVID-19) and pregnancy: what obstetricians need to know. *Am J Obstet Gynecol*. (2020) 222:415–26. 10.1016/j.ajog.2020.02.017 [[PMC free article](#)] [[PubMed](#)] [[CrossRef](#)] [[Google Scholar](#)]
- 39.Favre G, Pomar L, Musso D, Baud D. 2019-nCoV epidemic: what about pregnancies? *Lancet*. (2020) 395:e40 10.1016/S0140-6736(20)30311-1 [[PMC free article](#)] [[PubMed](#)] [[CrossRef](#)] [[Google Scholar](#)]
- 40.Centeno-Tablante E, Medina-Rivera M, Finkelstein JL, Rayco-Solon P, Garcia-Casal MN, Ghezzi-Kopel K, Rogers L, Peña-Rosas JP, Mehta S. Transmission of novel coronavirus-19 through breast milk and breastfeeding. A living systematic review of the evidence. *PROSPERO* 2020 CRD42020178664. <https://www.who.int/news-room/commentaries/detail/breastfeeding-and-covid-19>
- 41.Fox A, Marino J, Amanat F, Krammer F, Hahn-Holbrook J, Zolla-Pazner S, Powell RL. Evidence of a significant secretory-IgA-dominant SARS-CoV-2 immune response in human milk following recovery from COVID-19. *medRxiv preprint* doi: <https://doi.org/10.1101/2020.05.04.20089995>

42. Fox A, Marino J, Amanat F, Krammer F, Hahn-Holbrook J, Zolla-Pazner S, Powell RL. Evidence of a significant secretory-IgA-dominant SARS-CoV-2 immune response in human milk following recovery from COVID-19. medRxiv preprint doi: <https://doi.org/10.1101/2020.05.04.20089995>
43. Brooks S.K., Webster R.K., Smith L.E., Woodland L., Wessely S., Greenberg N., Rubin G.J. The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. *Lancet*. 2020;395:912–920. doi: 10.1016/S0140-6736(20)30460-8. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
44. González-Sanguino C., Ausín B., Castellanos M., Ángel Saiz J., López-Gómez A., Ugidos C., Muñoz M. Mental health consequences during the initial stage of the 2020 Coronavirus pandemic (COVID-19) in Spain. *Brain Behav. Immun.* 2020;87:172–176. doi: 10.1016/j.bbi.2020.05.040. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
45. Wang C., Pan R., Wan X., Tan Y., Xu L., Ho C.S.H., Ho R. Immediate Psychological Responses and Associated Factors during the Initial Stage of the 2019 Coronavirus Disease (COVID-19) Epidemic among the General Population in China. *Int. J. Environ. Res. Public Health*. 2020;17:1729. doi: 10.3390/ijerph17051729. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
46. Kang L., Ma S., Chen M., Yang J., Wang Y., Li R., Yao L., Bai H., Cai Z., Yang B.X., et al. Impact on mental health and perceptions of psychological care among medical and nursing staff in Wuhan during the 2019 novel coronavirus disease outbreak: A cross-sectional study. *Brain Behav. Immun.* 2020;87:11–17. doi: 10.1016/j.bbi.2020.03.028. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
47. <https://jamanetwork.com/journals/jama/fullarticle/2773479>
48. Vahia IV, Jeste DV, Reynolds CF. Older Adults and the Mental Health Effects of COVID-19. *JAMA*. 2020;324(22):2253–2254. doi:10.1001/jama.2020.21753
49. <https://www.apa.org/news/press/releases/stress/2020/sia-mental-health-crisis.pdf>
50. <https://www.oecd.org/coronavirus/policy-responses/supporting-young-people-s-mental-health-through-the-covid-19-crisis-84e143e5/pdf> U.S. Census Bureau, 2021[1]; Sciensano, 2021[2]; Santé Publique France, 2021[3].
51. <https://www.unicef.org/india/impact-covid-19-childrens-mental-health> (the impact of covid 19 on children's health)
52. <https://www.healthychildren.org/English/health-issues/conditions/COVID-19/Pages/Signs-your-Teen-May-Need-More-Support.aspx>
53. Yeasmin S, Banik R, Hossain S, et al. Impact of COVID-19 pandemic on the mental health of children in Bangladesh: A cross-sectional study. *Child Youth Serv Rev*. 2020;117:105277.
54. Orgilés M, Morales A, Delvecchio E, et al. Immediate psychological effects of the COVID-19 quarantine in youth from Italy and Spain. *PsyArXiv*. Accessed September 22, 2020. <https://psyarxiv.com/5bpfz/>
55. <https://www.indianpediatrics.net/dec2020/dec-1107.htm>
56. WONG S.F., CHOW K.M., LEUNG T.N., NG W.F., NG T.K., SHEK C.C., NG P.C., LAM P.W., HO L.C., TO W.W., LAI S.T., YAN W.W., TAN P.Y. Pregnancy and perinatal outcomes of women with severe acute respiratory syndrome. *Am J Obstet Gynecol*. 2004;191:292–297. [PMC free article][PubMed] [Google Scholar]
57. ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS Coronavirus (COVID-19) Infection in Pregnancy. Information for health professionals. 2020 Version 9, published May 13th 2020. Available from: <https://www.rcog.org.uk/globalassets/documents/guidelines/2020-05-13-coronavirus-covid-19-infection-in-pregnancy.pdf>: RCOG. [Google Scholar]

58. BUEKENS P., ALGER J., BREART G., CAFFERATA M.L., HARVILLE E., TOMASSO G. A call for action for COVID-19 surveillance and research during pregnancy. *Lancet Glob Health*. 2020 [[PMC free article](#)][[PubMed](#)] [[Google Scholar](#)]
59. KNIGHT M., NAIR M., TUFFNELL D., SHAKESPEARE J., KENYON S., KURINCZUK J J, editors. ON Behalf of MBRRACE-UK 2017. *Saving Lives, Improving Mothers' Care - Lessons Learned to Inform Maternity Care from the UK and Ireland Confidential Enquiries into Maternal Deaths and Morbidity 2013-15*. National Perinatal Epidemiology Unit, University of Oxford; Oxford: 2017. [[Google Scholar](#)]
60. ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS Coronavirus (COVID-19) Infection in Pregnancy. Information for health professionals. 2020 Version 9, published May 13th 2020. Available from: <https://www.rcog.org.uk/globalassets/documents/guidelines/2020-05-13-coronavirus-covid-19-infection-in-pregnancy.pdf>; RCOG. [[Google Scholar](#)]
61. ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS 2020b. Guidance for antenatal and postnatal services in the evolving coronavirus (COVID-19) pandemic. Version 1.2. 24th April 2020. Available from: <https://www.rcog.org.uk/globalassets/documents/guidelines/2020-03-30-guidance-for-antenatal-and-postnatal-services-in-the-evolving-coronavirus-covid-19-pandemic-20200331.pdf>; RCOG
62. NATIONAL INSTITUTE OF HEALTH AND CARE EXCELLENCE 2006. Postnatal care up to 8 weeks after birth. NICE guideline (CG37). Available from: <https://www.nice.org.uk/guidance/cg37/resources/postnatal-care-up-to-8-weeks-after-birth-pdf-975391596997>
63. KNIGHT M., BUNCH K., TUFFNELL D., SHAKESPEARE J., ROHIT K., KENYON S., editors. On Behalf of MBRRACE-UK 2019. *Saving Lives, Improving Mothers' Care - Lessons Learned to Inform Maternity Care from the UK and Ireland Confidential Enquiries into Maternal Deaths and Morbidity 2015-17*. EDS. National Perinatal Epidemiology Unit, University of Oxford; Oxford: 2019. [[Google Scholar](#)]
64. WORLD HEALTH ORGANIZATION. 2020. *Clinical management of severe acute respiratory infection when COVID-19 is suspected* [Online]. Available from: [https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-\(ncov\)-infection-is-suspected](https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-is-suspected). [Accessed 14/05/2020].
65. INFANT FEEDING SERVICE. 2020. *Coronavirus (COVID-19): guidance for Infant Feeding Service* [Online]. Available from: <https://www.gov.scot/publications/coronavirus-covid-19-guidance-infant-feeding-service>; Scottish Government. [Accessed 14/05/2020].
66. NATIONAL INSTITUTE OF HEALTH AND CARE EXCELLENCE 2006. Postnatal care up to 8 weeks after birth. NICE guideline (CG37). Available from: <https://www.nice.org.uk/guidance/cg37/resources/postnatal-care-up-to-8-weeks-after-birth-pdf-975391596997>.
67. <https://www.covid19treatmentguidelines.nih.gov>
68. <https://www.covid19treatmentguidelines.nih.gov/special-populations/pregnancy/>
69. Woodworth KR, Olsen EO, Neelam V, et al; CDC COVID-19 Response Pregnancy and Infant Linked Outcomes Team; COVID-19 Pregnancy and Infant Linked Outcomes Team (PILOT). Birth and infant outcomes following laboratory-confirmed SARS-Cov...
70. Adhikari EH, Moreno W, Zofkie AC, et al. Pregnancy outcomes among women with and without severe acute respiratory syndrome coronavirus 2 infection. *JAMA Netw Open*. 2020;3(11):e2029256. doi:10.1001/jamanetworkopen.2020.29256
71. Management considerations for pregnant patients with COVID-19. Society for Maternal-Fetal Medicine. Updated February 2, 2021. Accessed February 18, 2021.
72. <https://files.covid19treatmentguidelines.nih.gov/guidelines/covid19treatmentguidelines.pdf>
73. <https://www.mckinsey.com/featured-insights/gender-equality/the-future-of-women-at-work-transitions-in-the-age-of-automation>
74. <https://www.mckinsey.com/featured-insights/gender-equality/the-power-of-parity-advancing-womens-equality-in-asia-pacific>

75. [https://www.oecd.org/dev/development-gender/Unpaid\\_care\\_work.pdf](https://www.oecd.org/dev/development-gender/Unpaid_care_work.pdf)
76. <https://www.hindustantimes.com/analysis/prioritise-care-work-to-integrate-women-working-from-home-into-the-economy/story-QCCWBFL2j5Qm6G6NuULm1O.html>
77. <https://www.ilo.org/global/topics/coronavirus/lang--en/index.htm>
78. [https://www.ilo.org/wcmsp5/groups/public/---dgreports/ gender/documents/publication/wcms\\_814499.pdf](https://www.ilo.org/wcmsp5/groups/public/---dgreports/ gender/documents/publication/wcms_814499.pdf)
79. <https://www.marchofdimes.org/pregnancy/abuse-during-pregnancy.aspx>
80. <https://siepr.stanford.edu/news/covid-19-lockdowns-increase-domestic-violence-and-potential-harms-fetuses>
81. <https://www.frontiersin.org/articles/10.3389/fgwh.2020.00004/full>