DERLEME / REVİEW

Covid-19'lu Gebelerle Yapılan Maternal, Fetal Ve Neonatal Çalışmalar: Durum İncelemesi

Maternal, Fetal, And Neonatal Studies Involving Pregnant Women With Covid-19

Suzan ONUR*
Nesibe ÖZTÜRKMEN**

ÖZET

Bu çalışma, COVID-19 pozitif gebelerle ilgili literatürde yer alan çalışmaları araştıran bir durum incelemesidir. Araştırmanın amacı, COVID-19'un gebelik ve yenidoğan sağlığı üzerindeki etkilerini anlamak, bu etkilerin klinik seyrini, komplikasyonları ve yönetim stratejilerini ortaya koymaktır. Çalışma, 2020-2024 yılları arasında yapılmış ve yayımlanmış olan bilimsel makalelerle sınırlandırılmıştır. Literatür taraması PubMed, Scopus, Web of Science, Google Scholar ve YÖK tez veri tabanlarında gerçekleştirilmiştir. Literatür taraması yapılırken Türkçe ve ingilizce dilinde "Covid-19 ve gebelik", "koronavirüs ve gebelik", "SARS-CoV-2 ve gebelik", "SARS virüsü ve gebelik" anahtar kelimeleri kullanılmıştır. İçerik analizi yöntemiyle toplanan ve dahil etme kriterlerini karşılayan 17 (toplam örnek büyüklüğü: 20,995 gebe) makalenin derinlemesine değerlendirilmesi yapılmış ve araştırmacıların hazırladığı yapılandırılmış veri toplama formları kullanılarak sistematik bir şekilde incelenmiştir. Bu formlar, çalışmalardan elde edilen bilgilerin düzenli ve organize bir şekilde kaydedilmesini sağlamıştır. Tematik olarak belirlenen başlıklar; Yenidoğan Etkileri, Emzirme, Perinatal Sonuçlar, Psikolojik Etkiler, Maternal Sonuçlar, Histopatolojik Bulgular, Yoğun Bakım Yönetimi, Bulaşma ve İzolasyon şeklinde kodlanarak açıklanmıştır. Araştırmanın bulguları, COVID-19'un yenidoğanlara dikey geçişine dair yeterli kanıt olmadığını, ancak gebelik sürecinde ciddi maternal ve perinatal sonuçlara yol açabileceğini göstermiştir. Özellikle ağır hastalık durumlarında erken doğum, preeklampsi ve acil sezaryen oranlarının arttığı tespit edilmiştir. Ayrıca, COVID-19'un gebelerde, yüksek düzeyde anksiyete, depresyon ve stres gibi psikolojik etkilere neden olduğu belirlenmiştir. Sonuç olarak, COVID-19'un gebelik ve yenidoğanlar üzerindeki etkilerini anlamak için daha fazla araştırmaya ihtiyaç olduğuna kanaat getirilmiştir.

Anahtar Kelimeler: Covid-19, Fetal komplikasyonlar, Maternal komplikasyonlar, Neonatal etkiler, Gebelik.

ABSTRACT

This study is a case review investigating the literature on COVID-19-positive pregnant women. The research aims to understand the effects of COVID-19 on pregnancy and neonatal health and highlight the clinical course, complications, and management strategies associated with these effects. The study is limited to scientific articles published between 2020 and 2024. The literature review was conducted using databases such as PubMed, Scopus, Web of Science, Google Scholar, and the YOK thesis database. The search utilized the following keywords in both Turkish and English: "Covid-19 and pregnancy," "Coronavirus and pregnancy," "SARS-CoV-2 and pregnancy," and "SARS and pregnancy." Seventeen articles (Total Sample Size: 20,995) that met the inclusion criteria were collected and analyzed using content analysis methods. The researchers employed structured data collection forms for a systematic review. These forms facilitated the organized recording of information obtained from the studies. The thematic categories identified included: Neonatal Effects, Breastfeeding, Perinatal Outcomes, Psychological Effects, Maternal Outcomes, Histopathological Findings, Intensive Care Management, Transmission and Isolation. The findings of the research indicate that there is insufficient evidence for vertical transmission of COVID-19 to newborns; however, it can lead to serious maternal and perinatal outcomes during pregnancy. Particularly in severe cases, there is an increased rate of preterm birth, preeclampsia, and emergency cesarean sections. Additionally, it has been determined that COVID-19 causes high levels of anxiety, depression, and stress among pregnant women. In conclusion, it has been concluded that further research is needed to understand the effects of COVID-19 on pregnancy and newborns.

Key Words: Covid-19, Fetal complications, Maternal complications, Neonatal effects, Pregnancy.

Sorumlu Yazar:
Adı Soyadı: Suzan ONUR
Adres Dr Öğr. Üyesi, Karabük Üniversitesi Sağlık Bilimleri Fakültesi, Fizyoterapi ve Rehabilitasyon Bölümü, Karabük, Türkiye
e-mail: suzanonur@karabuk.edu.tr

* Dr Öğr. Üyesi, Karabük Üniversitesi Sağlık Bilimleri Fakültesi, Fizyoterapi ve Rehabilitasyon Bölümü, Karabük, Türkiye
** Yüksek Lisans Öğrencisi, Karabük Üniversitesi, Sağlık Bilimleri Fakültesi, Ebelik Bölümü, Karabük, Türkiye

ERÜ Sağlık Bilimleri Fakültesi Dergisi 2025; 12(1): 9-20
Gönderilme Tarihi: 20.11.2024, **Kabul Tarihi:** 21.01.2025

INTRODUCTION

Pregnancy is a process that suppresses the immune system, making women more vulnerable to viral infections. While even illnesses like seasonal flu can increase morbidity rates during pregnancy, the COVID-19 pandemic can lead to severe health problems in pregnant women. After the first COVID-19 cases emerged in China, the virus rapidly spread worldwide, heightening concerns related to pregnancy (Schoeman & Fielding, 2019).

Studies conducted on newborns lack adequate clinical data due to the novelty of the COVID-19 pandemic. Although knowledge about the transmission of COVID-19 from mother to fetus is limited, viral infections are believed to reach the fetus through the bloodstream. The absence of clear evidence regarding direct transmission between mother and fetus means that the effects of the virus on intrauterine development are not fully understood, and there is no concrete evidence in the literature that the virus may have adverse effects on unborn babies. Research findings indicating that placental samples tested negative for the virus support this situation. Additionally, case reports from China do not provide conclusive evidence of transmission to the fetus (Yan et al., 2020).

Pregnant women are particularly susceptible to respiratory pathogens and severe pneumonia due to their immunosuppressive condition (Schoeman & Fielding, 2019). During pregnancy, increased heart rate and oxygen consumption, reduced lung capacity due to the elevation of the uterus against the diaphragm, and immune system suppression make pregnant women more susceptible to respiratory infections. However, the effects and course of COVID-19 infection in pregnant women are not yet fully understood. This situation can lead to heightened anxiety and stress among pregnant women, particularly concerning their babies' health. Special nursing interventions should be planned for pregnant women affected by COVID-19 to address both the complications of the disease and to alleviate anxiety and stress (Tong et al., 2007).

METHOD

Type of Study

This study is designed as a case study that examines the literature on COVID-19-positive pregnant women. The case study method, recognized as a research methodology, has various names in the literature, such as case analysis or case study. It is a qualitative research method aimed at understanding a specific phenomenon or situation in depth and detail. The case study method is used to analyze events, processes, and relationships within a specific context (Subası & Okumus, 2017).

Scope of the study

This study aims to examine research related to COVID-19-positive pregnant women thoroughly. The primary objective is to understand the maternal and neonatal effects of COVID-19, the clinical course of these effects, complications, and management strategies. The scope of the study is limited to scientific articles published between 2020 and 2024.

Implementation of the case study method

Within the framework of this research, the case study method was applied through the following steps:

Literature review: The first phase of the research involves a comprehensive review of studies related to COVID-19-positive pregnant women. During this phase, a literature search was conducted using specific keywords in databases such as PubMed, Scopus, Web of Science, Google Scholar, and the YOK thesis database. The keywords used for the literature search included 'Covid-19 and pregnancy', 'Coronavirus and pregnancy', 'SARS-CoV-2 and pregnancy', 'SARS and pregnancy' in both Turkish and English.

ERÜ Sağlık Bilimleri Fakültesi Dergisi 2025; 12(1): 9-20
Gönderilme Tarihi: 20.11.2024, **Kabul Tarihi:** 21.01.2025

Inclusion and exclusion criteria: The studies obtained from the literature review were selected based on specific inclusion and exclusion criteria. The inclusion criteria required that the studies contain original research on COVID-19-positive pregnant women, be accessible in full text, and be written in either Turkish or English. The exclusion criteria included studies for which full text was not accessible, as well as reviews, systematic reviews, meta-analyses, and articles with qualitative designs.

Data collection: The selected articles were examined in detail to collect data. During the data collection process, findings, methodological approaches, sample sizes, study designs, and key results reported in the articles were taken into account. These data were systematically categorized in line with the objectives of the study.

Data analysis: Content analysis was utilized for data analysis. The fundamental operation in content analysis is to compile similar data under specific codes, categories, and themes and organize and interpret them in a manner that is understandable to the reader. This process consists of several stages. This study followed the stages of creating codes, categories, and themes (Yıldırım & Simsek, 2016).

Before proceeding to analysis, the data were carefully read, significant data relevant to the research were coded, and appropriate codes were compiled to form categories. By combining suitable categories, the themes of the research were created. Finally, the themes were organized and interpreted in a manner accessible to the reader. The necessary criteria for validity and reliability were considered in the research. Validity includes internal and external validity, while reliability is divided into internal and external reliability. Internal validity refers to credibility, external validity refers to transferability, internal reliability refers to consistency, and external reliability refers to confirmability (Ozdemir, 2010).

Reliability and validity of the study: The case study method provides high validity and reliability when carefully planned and implemented. For reliability, the studies to be used in this research were evaluated by two independent researchers. Additionally, to enhance reliability in this study, an international checklist (COREQ: Consolidated criteria for reporting qualitative studies) was utilized during the data collection and research report preparation phases (Tong et al., 2007).

Evaluation of articles: In this study, a detailed evaluation was conducted on 17 articles that met the inclusion criteria (Total Sample Size: 20.995) (Table 1).

Use of data collection forms: The 17 studies identified from the literature review were systematically examined using structured data collection forms prepared by the researchers. These forms ensured that the information obtained from the studies was recorded in an organized and systematic manner. The data collection forms included the following information: Title of the study, Authors, Year of publication, Sample size, Research method, and Key findings.

Ethical considerations: This study is a case study examining research related to COVID-19-positive pregnant women, and therefore, there was no need to obtain ethical committee approval.

ERÜ Sağlık Bilimleri Fakültesi Dergisi 2025; 12(1): 9-20
Gönderilme Tarihi: 20.11.2024, **Kabul Tarihi:** 21.01.2025

Number	Title of the Study	Author	Type of Research	Year	Language	Results
1	Maternal, Perinatal and Neonatal Outcomes with COVID-19: A Multicenter Study of 242 Pregnancies and Their 248 InfantNewborns During Their First Month of Life	Gabriel et al.	Research Article	2020	English	Transmission of COVID-19 during birth and in the first month of life in newborns has not been detected. However, breastfeeding rates have been found to be lower than expected.
2	Perinatal Outcomes After Admission With COVID-19 in Pregnancy: A UK National Cohort Study	Engjom et al.	Cohort Study	2024	English	Severe perinatal outcomes have been observed to be more common in women with moderate to severe illness. During the Delta-dominant period, COVID-19 has been found to be severe among unvaccinated women.
3	COVID-19 and Pregnancy Outcomes: Initial Findings Show Little Threat, but more Data are Needed.	Ribeiro et al.	Case Presentation	2020	English	None of the samples from amniotic fluid, cord blood, and newborn throat swabs tested for SARS-CoV-2, as well as breast milk, have shown evidence of vertical transmission of COVID-19. No severe COVID-19 cases or deaths have occurred among pregnant women in the third trimester. Additionally, neonatal asphyxia has not been observed.
4	Maternal and Perinatal Outcomes of Pregnant Women With SARS-Cov-2 Infection at the Time of Birth in England: National Cohort Study	Gurol-Urgancı et al.	Cohort Study	2021	English	SARS-CoV-2 infection at the time of delivery is associated with higher rates of fetal death, preterm birth, preeclampsia, and emergency cesarean delivery. No additional adverse neonatal outcomes have been observed, except for those related to preterm birth.
5	An Analysis of 38 Pregnant Women With COVID-19, Their Newborn Infants, and Maternal-Fetal Transmission of SARS-CoV-2	Schwartz	Special Article	2020	English	Intrauterine transmission of SARS-CoV-2 from the mother has infected their fetuses with COVID-19. All newborn samples tested, including placentas in some cases, have returned negative results.
6	Psychological Impact of COVID-19 on Pregnant Women: A Cross-Sectional Study	Puertas-Gonzalez et al.	Research Article	2021	English	The COVID-19 group has scored significantly higher on the depression scale, phobic anxiety scale, and Perceived Stress Scale. Additionally, insomnia and recently losing a loved one account for 25% of the variance in depression scores.

Gönderilme Tarihi: 20.11.2024, **Kabul Tarihi:** 21.01.2025

7	Clinical and Laboratory Results of Babies Born to 14 Pregnant Women with Positive COVID-19 Tests	Buyukeren et al.	Research Article	2022	Turkish	Results have been obtained that support the absence of transplacental transmission from a mother infected with SARS-CoV-2 to her newborn baby.
8	Management of Anesthesia for Emergency Cesarean Delivery in a COVID-19 Positive Pregnant Woman: Case Presentation	Gunel et al.	Case Presentation	2023	Turkish	By conducting the surgical preparation stages in another operating room, administering spinal anesthesia to the patient, and ensuring that the patient wears a surgical mask, the anesthesia for the COVID-19-positive pregnant patient was carried out, thereby minimizing the risk of transmission.
9	Immunohistochemical Evaluation of Placentas with VEGF Antibody in a Case of COVID-19 Positive Twin Pregnancy	Asır et al.	Case Presentation	2023	Turkish	In this study, which demonstrated that COVID-19 leads to vascular abnormalities in placentas, the high expression of the VEGF primary antibody also supports the literature as a histopathological finding.
10	Postpartum Anxiety Levels in Pregnant Women Diagnosed with COVID-19: Two Case Presentations	Cuvadar et al.	Case Presentation	2020	Turkish	The state of uncertainty, such as the mother being unable to see, breastfeed, or touch her baby, increases anxiety during the postpartum period.
11	The Birth and Breastfeeding Journey of a Pregnant Woman Diagnosed with COVID-19: Case Presentation	Turkmen & Balkaya	Case Presentation	2022	Turkish	In the process conducted in accordance with the recommendations published by the WHO and the Ministry of Health of the Republic of Turkey for pregnant women diagnosed with COVID-19, an uncomplicated vaginal delivery took place, and during the breastfeeding process, strict adherence to contact and droplet isolation rules was maintained with the support of nurses and midwives. No COVID-19 symptoms were observed in the newborn, and the continuity of skin-to-skin contact and lactation contributed to the development of the newborn and the recovery of the mother.
12	Diagnosis, Treatment, Monitoring Processes, and Attitudes Towards the Disease Among Pregnant Women Diagnosed with COVID-19	Dinmez & Eroglu	Research Article	2022	Turkish	It has been determined that pregnant women infected with COVID-19 did not benefit from routine monitoring and interventions during this process, required mental health support, and moved away from the idea of normal delivery.

Gönderilme Tarihi: 20.11.2024, **Kabul Tarihi:** 21.01.2025

13	Impact of Breastfeeding Knowledge Levels and Self-Efficacy on Breastfeeding Among Mothers Diagnosed with or Exposed to COVID-19	Durmus & Oztas	Research Article	2022	Turkish	It has been found that the way mothers feed their babies changed after being diagnosed or exposed during the pandemic, and that their level of breastfeeding knowledge during the pandemic did not affect their breastfeeding self-efficacy.
14	Comparison of Maternal, Neonatal, and Perinatal Outcomes Between COVID-19 Positive Pregnant Women and Non-COVID Pregnant Women During Delivery	Ferlibas	Thesis	2021	Turkish	It has been observed that operation durations and hospital stays are prolonged in pregnant women with COVID-19, and there is an increase in the rates of preterm birth.
15	Vimentin Expression in the Placenta of a COVID-19 Positive Woman with Stillbirth	Tas et al.	Case Presentation	2022	Turkish	Histopathological examination of the placenta revealed degeneration and necrosis in decidual cells, degeneration of chorionic villi, an increase in the connective tissue of some villi (stromal fibrosis), an increase in the number of syncytial knots, and congestion.
16	Epidemiological and Prognostic Factors in Pregnant Women Diagnosed with SARS-CoV-2	Gumus et al.	Research Article	2022	Turkish	Among the 200 pregnant women included in the study, 74 gave birth during the illness, and 14 experienced maternal death. The average saturation level in those resulting in maternal death was 88%. It has been observed that the mortality rate in those infected with the Delta variant increased by 3.5 times.
17	Management of Pregnant Women Diagnosed with COVID-19 in Intensive Care: Case Presentation	Karacay et al.	Case Presentation	2022	Turkish	It has been stated that planning the intensive care management of pregnant women diagnosed with COVID-19 using a multidisciplinary approach may be effective in preventing COVID-19-related adverse pregnancy outcomes.

Table 1. Descriptive Characteristics of Included Studies

Gönderilme Tarihi: 20.11.2024, **Kabul Tarihi:** 21.01.2025

RESULTS

In this study, the findings obtained from the 17 studies related to COVID-19-positive pregnant women, which were included in the research scope, were examined and presented in detail in Table 2.

Codes

Neonatal effects: No Transmission: 1, 3, 7

Breastfeeding: Low Rate: 1, Knowledge Level: 13, Supported: 11

Perinatal outcomes: Severe Outcomes: 2, Preeclampsia: 4, Fetal Death: 4, Preterm Birth: 4, 14, Emergency Cesarean: 4

Maternal outcomes: Long Operation Time: 14, Extended Hospital Stay: 14, Departure from Normal Delivery: 12, Maternal Death: 16

Histopathological and immunohistochemical findings: Placental Abnormalities: 9, 15, VEGF Expression: 9, Vimentin Expression: 15

Intensive care management: Multidisciplinary Approach: 17, Prevention of Adverse Outcomes: 17

Transmission and isolation:

Vertical Transmission: No Evidence: 3, 7, Possible: 5

Risk of Transmission: Reduction: 8, Isolation: Contact and Droplet: 11

This content analysis examines studies investigating the effects of COVID-19 on pregnancy and newborns. The findings encompass a broad range of issues, from the impacts of COVID-19 on newborns and maternal and perinatal outcomes to psychological effects, pregnancy and breastfeeding processes, histopathological findings, and intensive care management.

Psychological effects: Depression: 6, Phobic Anxiety: 6, Stress: 6, Insomnia: 6, Postpartum Anxiety: 10, Lack of Contact with Baby: 10.

DISCUSSION

This study examined and discussed the findings of 17 studies related to COVID-19-positive pregnant women under separate headings. The research findings provide significant information to healthcare providers, aiding in understanding the effects of COVID-19 on pregnancy and childbirth.

Neonatal effects

Several studies have determined that COVID-19 is not transmitted to newborns during birth and throughout the first month of life (Gabriel et al., 2020; Ribeiro et al., 2020; Buyukeren et al., 2022). In a multicenter study conducted by Gabriel et al. (2020), it was found that 242 pregnancies and 248 newborns did not exhibit transmission of COVID-19. Similarly, Ribeiro et al. (2020) found no evidence of vertical transmission of SARS-CoV-2 in amniotic fluid, umbilical cord blood, and newborn throat swab samples. These findings indicate a low risk of transmission of COVID-19 to newborns.

However, it has been noted that breastfeeding rates during this period are low and that COVID-19-positive mothers experience challenges in their breastfeeding processes. Studies by Turkmen and Balkaya (2022) and Durmuş and Oztas (2022) emphasize the importance of mothers' knowledge levels and support needs regarding breastfeeding. These findings suggest that mothers should receive increased support for breastfeeding during the COVID-19 pandemic.

Maternal and perinatal outcomes

Research on maternal and perinatal outcomes related to COVID-19 may vary depending on the severity of the infection and the vaccination status of pregnant women. Engjom et al. (2024) found that severe perinatal outcomes were more common among moderately to severely ill women.

Gönderilme Tarihi: 20.11.2024, **Kabul Tarihi:** 21.01.2025

Number	Title of the Study	Author, Year	Type of Research	Sample Size	Codes
1	Maternal, Perinatal and Neonatal Outcomes With COVID-19:A Multicenter Study of 242 Pregnancies and Their 248 Infant Newborns During Their First Month of Life	Gabriel et al. (2020)	Research Article	242	Neonatal Effects, Low Breastfeeding Rates, No Transmission
2	Perinatal Outcomes After Admission With COVID-19 In Pregnancy: A UK National Cohort Study	Engjom et al. (2024)	Cohort Study	16627	Perinatal Outcomes: Severe Outcomes, Severity of Illness: Moderate to Severe, Vaccination Status: None, Variant: Delta.
3	COVID-19 And Pregnancy Outcomes: Initial Findings Show Little Threat, But More Data Are Needed.	Ribeiro et al. (2020)	Case Presentation	6	Vertical Transmission: No Evidence, COVID-19 Severity: Mild, Neonatal Outcomes: No Asphyxia.
4	Maternal And Perinatal Outcomes Of Pregnant Women With SARS-Cov-2 Infection At The Time Of Birth In England: National Cohort Study	Gurol-Urgancı et al. (2021)	Cohort Study	3527	Maternal Outcomes: Preeclampsia, Emergency Cesarean, Fetal Outcomes: Death, Preterm Birth, Neonatal Outcomes: No Adverse Effects.
5	An Analysis of 38 Pregnant Women With COVID-19, Their Newborn Infants, and Maternal-Fetal Transmission of SARS-CoV-2	Schwartz (2020)	Special Article	7	Vertical Transmission: Possible, Newborn Tests: Negative.
6	Psychological Impact of COVID-19 on Pregnant Women: A Cross-Sectional Study	Puertas-Gonzalez et al. (2021)	Research Article	200	Psychological Effects: Depression, Phobic Anxiety, Stress, Insomnia.
7	Clinical and Laboratory Results of Babies Born to 14 Pregnant Women with Positive COVID-19 Tests	Büyükeren et al. (2022)	Research Article	14	Vertical Transmission: No Evidence.
8	Management of Anesthesia for Emergency Cesarean Delivery in a COVID-19 Positive Pregnant Woman: Case Presentation	Gunel et al. (2023)	Case Presentation	1	Transmission Risk: Reduction, Anesthesia Management: Spinal Anesthesia, Mask Use.
9	Immunohistochemical Evaluation of Placentas with VEGF Antibody in a Case of COVID-19 Positive Twin Pregnancy	Asır et al. (2023)	Case Presentation	1	Placental Abnormalities: Vascular, VEGF Expression: High.
10	Postpartum Anxiety Levels in Pregnant Women Diagnosed with COVID-19: Two Case Presentations	Cuvadar et al. (2020)	Case Presentation	2	Postpartum Anxiety, Lack of Contact with Baby.
11	The Birth and Breastfeeding Journey of a Pregnant Woman Diagnosed with COVID-19: Case Presentation	Turkmen & Balkaya, (2022)	Case Presentation	1	Delivery: Uncomplicated, Breastfeeding: Supported, Isolation: Contact and Droplet.

ERÜ Sağlık Bilimleri Fakültesi Dergisi 2025; 12(1): 9-20
Gönderilme Tarihi: 20.11.2024, **Kabul Tarihi:** 21.01.2025

12	Diagnosis, Treatment, Monitoring Processes, and Attitudes Towards the Disease Among Pregnant Women Diagnosed with COVID-19	Dinmez & Eroglu, (2022)	Research Article	68	Monitoring: Lacking, Mental Health Support: Needed, Birth Preference: Atypical.
13	Impact of Breastfeeding Knowledge Levels and Self-Efficacy on Breastfeeding Among Mothers Diagnosed with or Exposed to COVID-19	Durmus & Öztas (2022)	Research Article	47	Breastfeeding: Level of Knowledge, Self-Efficacy: Not Affected.
14	Comparison of Maternal, Neonatal, and Perinatal Outcomes Between COVID-19 Positive Pregnant Women and Non-COVID Pregnant Women During Delivery	Ferlibas, (2021)	Thesis	50	Operation Duration: Long, Hospital Stay: Prolonged, Preterm Birth: Increase.
15	Vimentin Expression in the Placenta of a COVID-19 Positive Woman with Stillbirth	Tas et al. (2022)	Case Presentation	1	Placental Abnormalities: Degeneration, Necrosis, Vimentin Expression: Increase.
16	Epidemiological and Prognostic Factors in Pregnant Women Diagnosed with SARS-CoV-2	Gumus et al. (2022)	Research Article	200	Maternal Death: Low Oxygen Saturation, Variant: Delta.
17	Management of Pregnant Women Diagnosed with COVID-19 in Intensive Care: Case Presentation	Karacay et al. (2022)	Case Presentation	1	Intensive Care Management: Multidisciplinary Approach, Prevention of Adverse Outcomes.

Table 2. Studies Conducted and Their Codes

Themes

Neonatal Effects: 1, 3, 7; Breastfeeding: 1, 11, 13; Perinatal Outcomes: 2, 4, 14; Psychological Effects: 6, 10; Maternal Outcomes: 4, 12, 14, 16; Histopathological Findings: 9, 15; Intensive Care Management: 17; Transmission and Isolation: 3, 8, 11.

Gönderilme Tarihi: 20.11.2024, **Kabul Tarihi:** 21.01.2025

Particularly during the dominance of the Delta variant and in unvaccinated women, COVID-19 has been associated with severe outcomes.

In the study by Gurol-Urganci (2021), the presence of SARS-CoV-2 infection at the time of delivery was linked to higher rates of fetal death, preterm birth, preeclampsia, and emergency cesarean sections. These findings underscore the potential adverse effects of COVID-19 on maternal and perinatal outcomes.

Psychological and mental effects

The psychological and mental effects of COVID-19 on pregnant women also emerge as significant issues. In a study by Puertas-Gonzalez et al. (2021), it was found that COVID-19-positive pregnant women had significantly higher levels of depression, phobic anxiety, and perceived stress. Furthermore, the study by Çuvadar et al. (2020) indicated that uncertainty, inability to see the baby, and inability to breastfeed increased postpartum anxiety. These findings suggest that pregnant women require more psychological support services during the COVID-19 pandemic. Mental health support during pregnancy can help manage these anxieties by maintaining emotional and psychological well-being.

Effects of COVID-19 on pregnancy and breastfeeding

The effects of COVID-19 on pregnancy and breastfeeding processes have been addressed in various studies. A study conducted by Dinmez and Eroglu (2022) noted that pregnant women infected with COVID-19 could not benefit from routine monitoring and procedures, highlighting their need for psychological support. Additionally, it was found that the mothers' knowledge levels regarding breastfeeding did not affect their breastfeeding self-efficacy (Durmuş and Oztas, 2022). These findings emphasize the need for increased support for pregnant and breastfeeding women during COVID-19.

Histopathological and immunohistochemical findings

Various abnormalities have been identified in placentas of COVID-19-positive pregnant women. A study by Asır et al. (2023) demonstrated that vascular abnormalities in COVID-19 placentas were associated with high VEGF primary antibody expression levels. Additionally, the study by Tas et al. (2022) identified expression of vimentin and degenerative and necrotic abnormalities in decidual cells from the placenta of a woman who experienced stillbirth due to COVID-19. These findings indicate that COVID-19 can lead to histopathological changes in placentas.

Intensive care and COVID-19 management

The intensive care management of pregnant women diagnosed with COVID-19 should also be approached with a multidisciplinary strategy. In a study by Karacay et al. (2022), it was noted that planning the intensive care management of pregnant women diagnosed with COVID-19 through a multidisciplinary approach could effectively prevent adverse pregnancy outcomes. These findings underscore the importance of intensive care management during the COVID-19 pandemic.

Limitations of the study and challenges encountered

In this study, the limitations and challenges encountered during the literature review and case study method concerning research on COVID-19-positive pregnant women include:

Language and Publication Year Limitations: Only studies published in English and Turkish between 2020 and 2024 were included.

Data Access: The full texts of some articles were not accessible.

ERÜ Sağlık Bilimleri Fakültesi Dergisi 2025; 12(1): 9-20
Gönderilme Tarihi: 20.11.2024, **Kabul Tarihi:** 21.01.2025

Rapidly Changing Nature of COVID-19: Findings may quickly become outdated.

Social Impacts: Effects of the pandemic.

CONCLUSION AND RECOMMENDATIONS

The findings of the research indicate that there is insufficient evidence for vertical transmission of COVID-19 to newborns; however, it can lead to serious maternal and perinatal outcomes during pregnancy. Particularly in severe cases, there is an increased rate of preterm birth, preeclampsia, and emergency cesarean sections. Additionally, it has been determined that COVID-19 causes high levels of anxiety, depression, and stress among pregnant women.

Further research is needed to understand the effects of COVID-19 on pregnancy and newborns. Current findings emphasize the importance of careful monitoring and management strategies to protect the health of pregnant women and newborns. The following recommendations can guide healthcare professionals during this process:

Breastfeeding and newborn care: It is essential to encourage COVID-19-positive mothers to breastfeed and to support breastfeeding practices with proper hygiene measures.

Pregnancy monitoring and support: Regular monitoring of pregnant women and timely medical interventions are critical for improving maternal and perinatal outcomes.

Mental health support: Programs should be developed to protect the psychological well-being of pregnant women by increasing mental health services.

Vaccination: Encouraging pregnant women to get vaccinated against COVID-19 can reduce severe perinatal outcomes. The importance of vaccination should be emphasized, particularly during high-risk periods and when variants are widespread.

Intensive care management: The management of pregnant women diagnosed with COVID-19 using a multidisciplinary approach can enhance the effectiveness of intensive care processes.

Research and data collection: More data should be collected, and comprehensive studies should be conducted to understand the long-term effects of COVID-19 on pregnancy and newborns. This will help us be better prepared for future pandemics.

These recommendations can contribute to developing strategies to reduce the adverse effects of COVID-19 on pregnancy and protect the health of both mother and baby.

ERÜ Sağlık Bilimleri Fakültesi Dergisi 2025; 12(1): 9-20
Gönderilme Tarihi: 20.11.2024, **Kabul Tarihi:** 21.01.2025

REFERENCES

Asır, F., Erdemci, F., Tas, F., Yilmaz, M., & Deveci, E. (2022). Immunohistochemical evaluation of placentas with VEGF antibody in a COVID-19 positive twin pregnancy case, *International Capital Conference on Multidisciplinary Scientific Research,* July 13-14. Lisbon-Portugal.

Buyukeren, M., Özcan, B., Esenkaya, Ü., and Günenc, O. (2022). Clinical and laboratory results of the babies of 14 pregnant women who gave birth while testing positive for Covid-19, *Journal of Gynecology-Obstetrics and Neonatology*, 19(2), 1266-1271. https://doi.org/10.38136/jgon.869928

Cuvadar, A., Ozcan, H., Arıkan, M. G., Ates, S. (2020). Postpartum anxiety levels in pregnant women diagnosed with Covid-19: Two case presentations, *Ordu University Journal of Nursing Studies*, 3(3), 297-301. https://doi.org/10.38108/OUHCD.773462

Dinmez, S. G., ve Eroglu, K. (2022). Diagnosis, treatment, and follow-up processes of pregnant women diagnosed with Covid-19 and their approach to the disease, *Hacettepe University Faculty of Nursing Journal*, 9(3), 274-282. https://doi.org/10.31125/hunhemsire.1229931

Durmus, A. ve Oztas, H. G. (2022). Knowledge levels of mothers diagnosed with or exposed to Covid-19 regarding breastfeeding and its effect on breastfeeding self-efficacy, *Kırsehir Ahi Evran University Journal of Health Sciences*, 6(1), 14-21. https://dergipark.org.tr/en/download/article-file/1916459

Engjom, H. M., Ramakrishnan, R., Vousden, N., Bunch, K., Morris, E., Simpson, N., Gale, C., 'Brein, P., Quigley, M., Brocklehurst, P., Kurinczuk, J. J., Knight, M. (2024). Perinatal outcomes after admission with COVID-19 in pregnancy: a UK national cohort study, *Nature Communications*, 15(1), 3234. doi: 10.1038/s41467-024-47181-z.

Ferlibas, E. (2021). Comparison of maternal, neonatal, and perinatal outcomes between COVID-19 positive pregnant women and non-COVID-19 pregnant women during childbirth. (Unpublished master's/doctoral thesis). Necmettin Erbakan University. https://acikerisim.erbakan.edu.tr/server/api/core/bitstreams/88523a08-e599-485a-ad2a-097cba51371d/content.

Gabriel, M. A. M., Vergeli, M. R., Carbonero, S. C., Sole, L., Molina, T. C., Calle, I. R., Perez, I. C., Fernandez, B. A., Buratti, A. F., Canadas Morilla, A. F. (2020). Maternal, perinatal and neonatal outcomes with COVID-19: a multicenter study of 242 pregnancies and their 248 infant newborns during their first month of life, *The Pediatric Infectious Disease Journal*, 39(12), e393-e397. doi: 10.1097/INF.0000000000002902.

Gınel et al. (2023). Emergency Caesarean Anesthesia Management in Covid-19 Positive Pregnant: Case Report, *Sakarya Medical Journal,* 10(4), 690-93. https://doi.org/10.31832/smj.762081

Gumus, A., Karasin, S. S., Sayar, M.S., Yorulmaz Göktas, S, Asan, A., Akca, M. O., Ozturk, Ç. (2022). Epidemiological and prognostic factors in pregnant women diagnosed with SARS-CoV-2, *Sakarya Medical Journal*, 12(4), 703-711. doi:10.31832/smj.1156358

Gurol-Urganci, I., Jardine, J. E., Carroll, F., Draycott, T., Dunn, G., Fremeaux, A., Harris, T., Hawdon, J., Morris, E., Muller, P., Waite, L., Webster, K., Meulen, J., Khalil, A. (2021). Maternal and perinatal outcomes of pregnant women with SARS-CoV-2 infection at the time of birth in England: national cohort study, *American Journal of Obstetrics and Gynecology*, 225(5), 522-e1. doi: 10.1016/j.ajog.2021.05.016

Karacay, T., Gursoy, C., Cakır, T., Onel, C., ve Ugur, B. (2022). Management of pregnant women with Covid-19 in the intensive care unit: Case presentation, *Mugla Sıtkı Kocman University Medical Journal*, 9(3), 295-298. https://doi.org/10.47572/muskutd.973924

Ozdemir, M. (2010). Qualitative data analysis: A study on the methodological issue in social sciences, Eskisehir Osmangazi University Journal of Social Sciences, 11(1), 323-343. https://dergipark.org.tr/tr/pub/ogusbd/issue/10997/131612

Puertas-Gonzalez, J. A., Mariño-Narvaez, C., Peralta-Ramirez, M. I., and Romero-Gonzalez, B. (2021). The psychological impact of the COVID-19 pandemic on pregnant women, *Psychiatry Research*, 301, 113978. doi: 10.1016/j.psychres.2021.113978

Ribeiro, C. J. N., Lima, S. V. M. A. and Dos Santos, A. D. (2020). COVID-19 and pregnancy outcomes: initial findings show little threat, but more data are needed, *Evidence-Based Nursing*, 24(59). doi: 10.1136/ebnurs-2020-103296

Schoeman, D. and Fielding, B. C. (2019). Coronavirus envelope protein: Current knowledge, *Virology Journal*, 16(1), 69. doi: 10.1186/s12985-019-1182-0

Schwartz, DA. (2020). An analysis of 38 pregnant women with COVID-19, their newborn infants, and maternal-fetal transmission of SARS-CoV-2: maternal coronavirus infections and pregnancy outcomes, *Archives of Pathology & Laboratory Medicine*, 144(7), 799-805. doi: 10.5858/arpa.2020-0901-SA

Subası, M., Okumus, K. (2017). Case Study as a Research Method. *Journal of Ataturk University Institute of Social Sciences,* 21(2), 419-426. https://dergipark.org.tr/en/download/article-file/474049

Tas, F., Yılmaz, M., Aşir, F., Erdemci, F., Deveci, E. (2022). Vimentin expression in the placenta of a COVID-19 positive mother with a stillbirth. *II-International Conference on Global Practice of Multidisciplinary Scientific Studies*, 509-519.

Tong, A., Sainsbury, P., Craig, J. (2007). Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups, *Int J Qual Health Care*, 19(6), 349-357. https://doi.org/10.1093/intqhc/mzm042.

Turkmen, A. & Balkaya, N. A. (2022). Birth and Breastfeeding Journey of a Pregnant Woman Diagnosed with COVID-19: A Case Report, *Ordu University Journal of Nursing Studies*, 5(2), 229-233. DOI:10.38108/ouhcd.897455

Yan, J., et al. (2020). Coronavirus disease 2019 (COVID-19) in pregnant women: A report based on 116 cases, *American Journal of Obstetrics & Gynecology*, 223(1), 111.e1-111.e14. doi: 10.1016/j.ajog.2020.04.014.

Yildirim, A., Simsek, H. (2016). Qualitative Research Methods in Social Sciences. Seckin Publishing.

Gönderilme Tarihi: 20.11.2024, **Kabul Tarihi:** 21.01.2025