

Characteristics of COVID-19 Clinical Symptoms in Pregnant Women

Ratna Dewi Puspita Sari^{1*}¹Department of Obstetrics and Gynecology, Faculty of Medicine, University of Lampung, Bandar Lampung, 35141, IndonesiaDOI: [10.36348/sjimps.2023.v09i03.002](https://doi.org/10.36348/sjimps.2023.v09i03.002)

| Received: 08.01.2023 | Accepted: 15.02.2023 | Published: 04.03.2023

*Corresponding author: Ratna Dewi Puspita Sari

Department of Obstetrics and Gynecology, Faculty of Medicine, University of Lampung, Bandar Lampung, 35141, Indonesia

Abstract

Background: Pregnant women are considered vulnerable to be infected with Covid-19 and it is feared that this will result in unfavorable conditions for the baby and mother. Pregnant women with Covid-19 require special attention and care, because the viral infection caused by Covid-19 does not only attack the mother, but also the baby and adversely affects the outcome of pregnancy. **Objective:** This study aims to provide an overview of the characteristics of pregnant women with Covid-19 and delivery outcomes at Abdul Moloek Hospital Bandar Lampung. **Methods:** Searching the medical records of pregnant women with confirmed COVID-19 who gave birth at the Kasih Ibu Hospital in Surakarta. data is presented in the form of a distribution based on gravida, parity, Covid-19 symptoms, degree of Covid-19 symptoms, and delivery outcomes. **Results:** A total of 104 pregnant women with confirmed Covid-19 delivery at Abdul Moloek Hospital Bandar Lampung. Respondents who gave birth had experienced pregnancy more than once and had given birth two to five times. Of all pregnant women, most experienced asymptomatic symptoms, and 11.5% mild symptoms, of which only 9.6% experienced severe symptoms. Outcome of labor was found not to have preterm delivery. **Conclusion:** Further research is needed on the transmission of Covid-19 from mother to fetus.

Keywords: Covid-19, characteristics of Covid-19 symptoms, pregnancy.

Copyright © 2023 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

INTRODUCTION

Covid-19 is an infectious disease caused by a new type of coronavirus 2 (SARS-CoV-2). This disease was first reported in Wuhan, Hubei, China in December 2019 (Bellos *et al.*, 2021). Covid-19 first entered Indonesia on March 2, 2020 (WHO, 2020a), until December 2021 there had been 4,256,687 confirmed cases of Covid-19 and 143,840 cases of death (COVID-19, 2021). Lampung Province ranks 18th on a national scale with 49,680 confirmed positive Covid-19, the most cases are in Bandar Lampung City with 11,358 confirmed cases (BAPPEDA Provinsi Lampung, 2021). Until now, data describing the process of transmitting the virus to pregnant women (who were detected positive for SARS-CoV-2) to their fetuses are still limited (Pulinx *et al.*, 2020). Hospital Dr. H, Abdul Moeloek is the hospital for handling Covid-19 and the highest referral hospital in Lampung Province.

Covid-19 spreads quickly after humans have close physical interactions (Yuliana, 2020). People infected with Covid-19 will experience symptoms such as dry cough, fever, shortness of breath, sore throat, chills, myalgia, diarrhea, and vomiting. SARS virus

infection has been associated with poor pregnancy outcomes (Rumfabe *et al.*, 2020). Based on the degree of symptoms, (Chen *et al.*, 2020) stated that Covid-19 infection was divided into asymptomatic and mild-moderate symptoms 80%, severe symptoms 15%, and critical 5%. Supported by research conducted by (Motlagh *et al.*, 2020) from several countries affected by Covid-19 in pregnant women 40% experienced mild symptoms, 40% experienced moderate symptoms, 15% cases experienced severe symptoms, and 5% cases experienced critical. Several studies show that the symptoms of Covid-19 in pregnant women are mostly the same as the general population, such as fever, cough, shortness of breath, sore throat and so on.

Pregnant women are reported to be a vulnerable population, pregnant women and their fetuses are considered to have a higher risk if infected by COVID-19 (Atmojo, 2020; Dana *et al.*, 2020). This is because during pregnancy the mother's condition undergoes physiological changes that can have an impact on a partial decrease in the ability of the immune system (Pradana *et al.*, 2020). Previous research has stated that COVID-19 infection in pregnant women can lead to the risk of complications to

the mother and fetus, premature birth, spontaneous abortion, fetal growth failure, intensive care in the intensive care unit, and coagulopathy (Verma *et al.*, 2020). However, several studies of pregnant women infected with Covid-19 explain that there is no vertical transmission to (Abedzadeh-Kalahroudi *et al.*, 2021; Pirjani *et al.*, 2020) and until now, research and case reports regarding the impact of COVID-19 on pregnant women are still few (Aryani *et al.*, 2022) Previous studies have also not been able to prove the existence of vertical transmission of the virus from mother to baby during pregnancy or delivery, and several studies have identified the presence of virus-specific IgG in fetuses born to asymptomatic or asymptomatic COVID-19 positive mothers (Nana *et al.*, 2022; Wastnedge *et al.*, 2021). Research that has been conducted on pregnant women with Covid-19 shows that pregnant women rarely experience severe respiratory symptoms with typical clinical symptoms because pregnant women are physiologically immunosuppressed. However, there are some findings which state that pregnant women can experience severe symptoms and are at risk for birth outcomes. (Liu *et al.*, 2020; Ryan *et al.*, 2020). Thus,

researchers want to know how the clinical characteristics possessed by pregnant women with Covid-19.

METHODS

This research was conducted by conducting medical records of pregnant women who were confirmed to be Covid-19 and giving birth at Abdul Moloek Hospital Bandar Lampung. The patient was declared confirmed Covid-19 based on data from the Polymerase Chain Reactions (PCR) swab test. The data is presented in the form of a distribution based on gravida, parity, Covid-19 symptoms, degree of Covid-19 symptoms, and delivery outcomes.

RESULTS

The following is data on pregnant women who have given birth with Covid-19 at Abdul Moloek Hospital Bandar Lampung. The distribution of things can be seen in Figure 1.

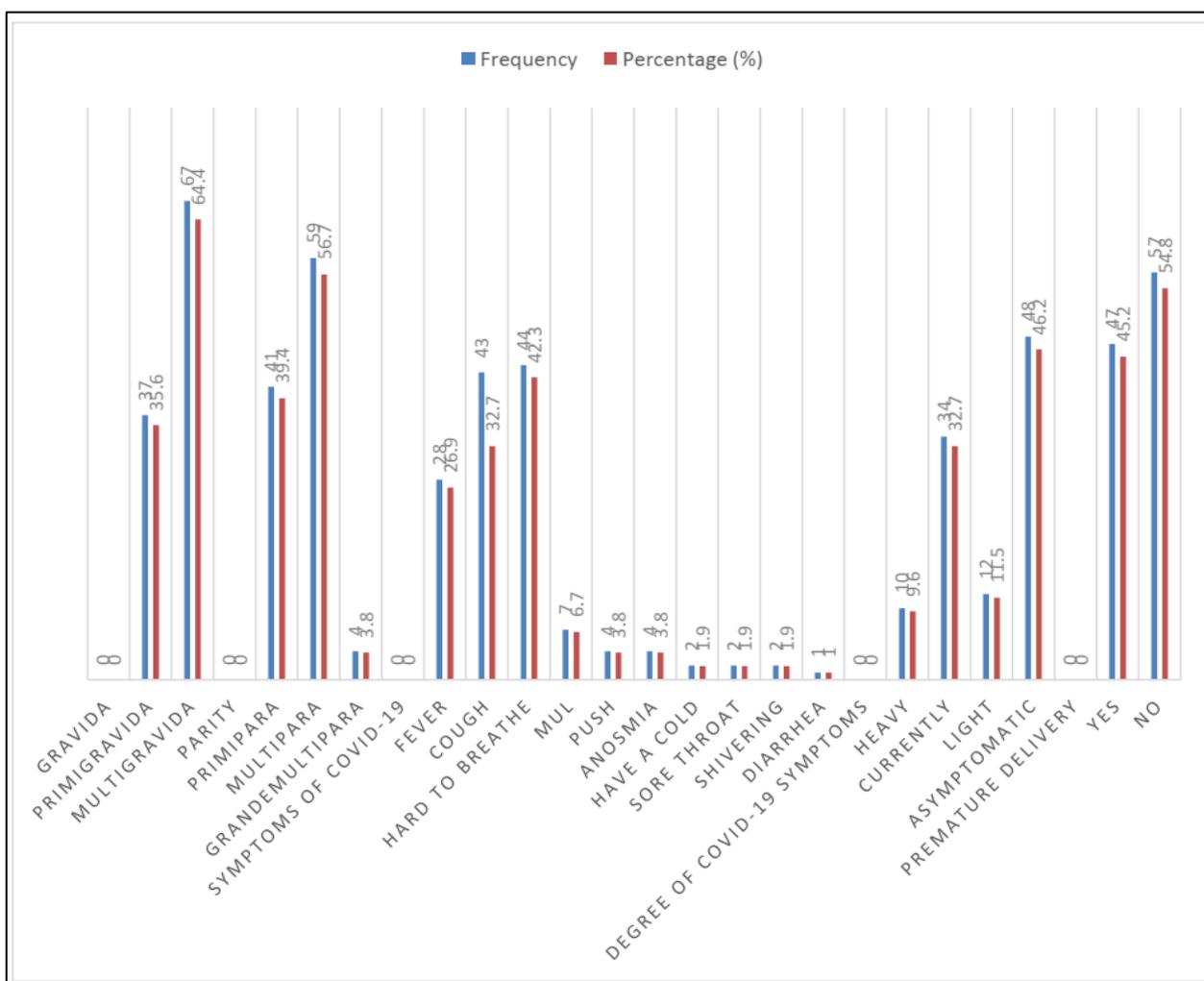


Figure 1: Distribution of Data for Pregnant Women Infected With Covid-19

DISCUSSION

Risk and Symptoms of Covid-19 in Pregnant Women

A total of 104 pregnant women with Covid-19 who were in Abdul Moloek Hospital were classified based on obstetric and clinical characteristics. Obstetric characteristics were seen based on gravida status and parity. Based on the data obtained on the characteristics of gravida as much as 35.6% of primigravida mothers, meaning a mother who has experienced pregnancy for the first time and multigravida as much as 64.4%, multigravida is a mother who has experienced pregnancy more than once. While the parity characteristics are 39.4% primiparous mothers, which means a mother who has once given birth to a baby who was born alive or died with an estimated gestation period of 20 weeks or more, 56.7% of multiparous mothers, i.e. a mother who has completed two to five times of delivery, and 3.8% of grandmultiparous mothers who had more than five deliveries. This shows that most of the respondents have experienced pregnancy more than once and have given birth two to five times.

Clinical picture of pregnant women with Covid-19 can be divided into four classifications based on the degree of symptoms, namely severe, moderate, mild, and asymptomatic. Based on the results of research conducted at Abdul Moeloek General Hospital of 104 pregnant women 46.2% of them experienced asymptomatic symptoms, 32.7% moderate, 11.5% mild, and 9.6% severe symptoms. Previous studies reported 86.0% of mild cases and about 14.0% of severe and critical cases in pregnant women infected with Covid-19 (Aghaamoo *et al.*, 2021; Dileep *et al.*, 2022). In addition, a similar study conducted by (Motlagh *et al.*, 2020) from several countries affected by Covid-19 in pregnant women 40% experienced mild symptoms, 40% experienced moderate symptoms, 15% cases experienced severe symptoms, and 5% cases experiencing critical. (WHO, 2020b) states that as many as 80% are infected with Covid-19 with asymptomatic degrees of symptoms. While the research conducted (Mahendra *et al.*, 2022). Some pregnant women infected with Covid-19 have no symptoms or are asymptomatic and have mild symptoms. There were no deaths, including pregnant women who were in critical condition and treated in intensive care (Chen *et al.*, 2020). Things that might cause the majority of mild Covid-19 cases in pregnant women due to hormonal changes with dominant progesterone causing dominant changes (Rohmah & Nurdianto, 2020). The classification of Covid-19 symptoms is intended to help plan action and treatment quickly and appropriately.

Common symptoms that are often experienced by pregnant women with Covid-19 at Abdul Moloek Hospital are 43.3% shortness of breath, this is experienced by Covid-19 sufferers because germs enter the lung tissue through the upper respiratory tract to the

bronchioles (Ristian *et al.*, 2022). The next dominant symptom is 42.7% cough, this occurs because Covid-19 attacks the lung epithelium which produces Angiotensin Converting Enzyme 2 (ACE2) in the lungs (Chen *et al.*, 2020). Furthermore, as many as 26.9% of cases reported complaining of fever, the onset of fever is the body's reaction to the presence of pyrogen substances in the form of viral infections that enter the circulation, and other symptoms such as 6.7% nausea, dizziness and 3.8% anosmia. The least common complaints were runny nose, sore throat, chills 1.9%, and diarrhea 1%. Most pregnant women will only experience symptoms such as fever, cough, shortness of breath, headache, and other relevant symptoms (S. Yan *et al.*, 2020) fever, cough, and chest pain (Panahi *et al.*, 2020).

One of the factors that makes it easier for pregnant women to be susceptible to Covid-19 infection is changes in the immune system that result in physiological changes in the body that also change the dominance of microbicidal and proinflammatory T-helper(Th)1 cells that produce cytokines such as interferon- γ (INF). -) interleukin (IL)-1 α . IL-1 β , IL-6 and IL 12, turn into a predominant Th-2 which is anti-inflammatory and includes IL-4, IL-10, IL-13 and *transforming growth factor* – (TGF- β) this condition causes *immunosuppression state*, thereby increasing the susceptibility of pregnant women to intracellular pathogens such as viruses (J. Yan *et al.*, 2020; Zhang *et al.*, 2020).

In addition, physiological adaptive conditions during pregnancy such as an elevated diaphragm, increased oxygen consumption, limited lung expansion and edema of the mucous membranes of the respiratory tract due to high levels of estrogen and progesterone can facilitate hypoxia (COVID-19, 2021, p. 19; Zhang *et al.*, 2020).4, 12. Signs and symptoms experienced by pregnant women are similar to those of the general population infected with COVID-19 Pregnancy with Covid-19 tends to have adverse birth outcomes for both mother and baby, which is characterized by premature birth, low birth weight, neonatal infection NUMBER 35, premature rupture of membranes, abnormal amniotic fluid, and delivery of umbilical cord abnormalities (Panahi *et al.*, 2020). Overall this is experienced if the pregnant woman has a history of severe disease (Dileep *et al.*, 2022). With comorbidities it is possible to increase the risk consistently such as hypertension, diabetes, asthma, heart disease and other chronic diseases (Islami *et al.*, 2021). The results of the study on 104 pregnant women at RSUD Abdul Moloek showed that 45.2% had preterm labor and 54.8% did not give birth prematurely. This is in line with research conducted by (Arnaez *et al.*, 2021; Pirjani *et al.*, 2020), that pregnant women infected with Covid-19 have nothing to do with premature birth.

CONCLUSION

Pregnant women who are exposed to Covid-19 generally have no difference in clinical symptoms with the general population group who are not pregnant. The majority of pregnant women with Covid-19 have moderate clinical symptoms such as fever, cough, shortness of breath, nausea and so on, even the average pregnant woman with Covid-19 has asymptomatic symptoms. The outcome of labor for pregnant women with Covid-19 had no impact on premature birth.

ACKNOWLEDGMENT

The author would like to thank all medical staff of Abdul Moloek Hospital Bandar Lampung who have helped you in the research subject.

Author Contributions: RDPS wrote the manuscript.

Declaration of Interest: We declare there is no potential conflict of interest.

REFERENCES

- Abedzadeh-Kalahroudi, M., Sehat, M., Vahedpour, Z., & Talebian, P. (2021). Maternal and neonatal outcomes of pregnant patients with COVID-19: A prospective cohort study. *International Journal of Gynecology & Obstetrics*, 153(3), 449–456. <https://doi.org/10.1002/ijgo.13661>
- Aghaamoo, S., Ghods, K., & Rahmanian, M. (2021). Pregnant women with COVID-19: The placental involvement and consequences. *Journal of Molecular Histology*, 52(3), 427–435. <https://doi.org/10.1007/s10735-021-09970-4>
- Arnaez, J., Ochoa-Sangrador, C., Caserío, S., Gutiérrez, E. P., Jiménez, M. del P., Castañón, L., Benito, M., Peña, A., Hernández, N., Hortelano, M., Schuffelmann, S., Prada, M. T., Diego, P., Villagómez, F. J., & Garcia-Alix, A. (2021). Lack of changes in preterm delivery and stillbirths during COVID-19 lockdown in a European region. *European Journal of Pediatrics*, 180(6), 1997–2002. <https://doi.org/10.1007/s00431-021-03984-6>
- Aryani, R., Zahra, A. N., Silvia, L., & Mahendra, N. A. (2022). *Laporan Kasus COVID-19 pada Ibu Hamil dengan Komorbid Asma di RSI Sultan Agung Semarang*. 8.
- Atmojo, J. T. (2020). Infeksi Covid-19 pada Kehamilan dan Persalinan: A review. *Jurnal Informasi Kesehatan Indonesia (JIKI)*, 6(1), 1–5. <https://doi.org/10.31290/jiki.v6i1.1503>
- BAPPEDA Provinsi Lampung. (2021). *Peta Zonasi Resiko dan Data Covid-19 Provinsi Lampung, 1 Desember 2021*. Tersedia dari: <http://bappeda.lampungprov.go.id/grafik-sebaran.html>.
- Bellos, I., Pandita, A., & Panza, R. (2021). Maternal and perinatal outcomes in pregnant women infected by SARS-CoV-2: A meta-analysis. *European Journal of Obstetrics, Gynecology, and Reproductive Biology*, 256, 194–204. <https://doi.org/10.1016/j.ejogrb.2020.11.038>
- 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. (2020). Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: A retrospective review of medical records. *Lancet (London, England)*, 395(10226), 809–815. [https://doi.org/10.1016/S0140-6736\(20\)30360-3](https://doi.org/10.1016/S0140-6736(20)30360-3)
- COVID-19, W. R. P. (2021). *Kesembuhan COVID-19 Mencapai 4.104.964 Orang—Berita Terkini*. Covid19.Go.Id. <https://covid19.go.id/p/berita/kesembuhan-covid-19-mencapai-4104964-orang>
- COVID-19, W. R. P. (2021). *Peta Sebaran COVID-19*. Covid19.Go.Id. <https://covid19.go.id/peta-sebaran-covid19>
- Dana, P. M., Kolahdooz, F., Sadoughi, F., Moazzami, B., Chaichian, S., & Asemi, Z. (2020). *COVID-19 and pregnancy: A review of current knowledge*. 6.
- Dileep, A., ZainAlAbdin, S., & AbuRuz, S. (2022). Investigating the association between severity of COVID-19 infection during pregnancy and neonatal outcomes. *Scientific Reports*, 12(1), 3024. <https://doi.org/10.1038/s41598-022-07093-8>
- Islami, I., Asiyah, N., & Nasriyah, N. (2021). COVID 19 PADA KEHAMILAN. *Indonesia Jurnal Kebidanan*, 5(2), 48. <https://doi.org/10.26751/ijb.v5i2.1198>
- Liu, H., Liu, F., Li, J., Zhang, T., Wang, D., & Lan, W. (2020). Clinical and CT imaging features of the COVID-19 pneumonia: Focus on pregnant women and children. *The Journal of Infection*, 80(5), e7–e13. <https://doi.org/10.1016/j.jinf.2020.03.007>
- Mahendra, N. A., Aryani, R., Zahra, A. N., & Silvia, L. (2022). Laporan Kasus COVID-19 pada Ibu Hamil dengan Komorbid Asma di RSI Sultan Agung Semarang. *Prosiding Konstelasi Ilmiah Mahasiswa Unissula (KIMU) Klaster Kesehatan*, 0(0), Article 0. <http://jurnal.unissula.ac.id/index.php/kimukes/artic/e/view/20280>
- Motlagh, A. J., Esmaelzadeh Saeieh, S., Parhigar, O., & Salehi, leili. (2020). An asthmatic pregnant woman with COVID-19: A case report study. *Respiratory Medicine Case Reports*, 31, 101296. <https://doi.org/10.1016/j.rmcr.2020.101296>
- Nana, M., Hodson, K., Lucas, N., Camporota, L., Knight, M., & Nelson-Piercy, C. (2022). Diagnosis and management of covid-19 in pregnancy. *BMJ*, 377, e069739. <https://doi.org/10.1136/bmj-2021-069739>
- Panahi, L., Amiri, M., & Pouy, S. (2020). Risks of Novel Coronavirus Disease (COVID-19) in

- Pregnancy; a Narrative Review. *Archives of Academic Emergency Medicine*, 8(1), e34.
- Pirjani, R., Hosseini, R., Soori, T., Rabiei, M., Hosseini, L., Abiri, A., Moini, A., Shizarpour, A., Razani, G., & Sepidarkish, M. (2020). Maternal and neonatal outcomes in COVID-19 infected pregnancies: A prospective cohort study. *Journal of Travel Medicine*, 27(7), taaa158. <https://doi.org/10.1093/jtm/taaa158>
 - Pradana, A. A., Casman, C., & Nur'aini, N. (2020). Pengaruh Kebijakan Social Distancing pada Wabah COVID-19 terhadap Kelompok Rentan di Indonesia. *Jurnal Kebijakan Kesehatan Indonesia : JKKI*, 9(2), 61–67. <https://doi.org/10.22146/jkki.55575>
 - Pulinx, B., Kieffer, D., Michiels, I., Petermans, S., Strybol, D., Delvaux, S., Baldewijns, M., Raymaekers, M., Cartuyvels, R., & Maurissen, W. (2020). Vertical transmission of SARS-CoV-2 infection and preterm birth. *European Journal of Clinical Microbiology & Infectious Diseases*, 39(12), 2441–2445. <https://doi.org/10.1007/s10096-020-03964-y>
 - Ristian, R., Fauji, A., Andaz, A. M., & Astuti, P. (2022). GAMBARAN GEJALA PADA PASIEN COVID 19 DI RUMAH SAKIT MARY CILEUNGI TAHUN 2021. *Jurnal Sahabat Keperawatan*, 4(01), 18–23.
 - Rohmah, M. K., & Nurdianto, A. R. (2020). Corona Virus Disease 2019 (COVID-19) pada Wanita Hamil dan Bayi: Sebuah Tinjauan Literatur. *Medica Hospitalia : Journal of Clinical Medicine*, 7(1A), 329–336. <https://doi.org/10.36408/mhjc.v7i1A.476>
 - Rumfabe, S. S., Y, H., & M.D.A, P. (2020). Dampak Coronavirus Disease 2019 (Covid-19) Pada Kehamilan Sejak Desember 2019 Hingga Agustus 2020 Melalui Tinjauan Literatur. *Wal'afiat Hospital Journal*, 1(2), 14–22. <https://doi.org/10.33096/whj.v1i2.45>
 - Ryan, G. A., Purandare, N. C., McAuliffe, F. M., Hod, M., & Purandare, C. N. (2020). Clinical update on COVID-19 in pregnancy: A review article. *The Journal of Obstetrics and Gynaecology Research*, 46(8), 1235–1245. <https://doi.org/10.1111/jog.14321>
 - Verma, S., Carter, E. B., & Mysorekar, I. U. (2020). SARS-CoV2 and pregnancy: An invisible enemy? *American Journal of Reproductive Immunology*, 84(5), e13308. <https://doi.org/10.1111/aji.13308>
 - Wastnedge, E. A. N., Reynolds, R. M., van Boeckel, S. R., Stock, S. J., Denison, F. C., Maybin, J. A., & Critchley, H. O. D. (2021). Pregnancy and COVID-19. *Physiological Reviews*, 101(1), 303–318. <https://doi.org/10.1152/physrev.00024.2020>
 - WHO. (2020a). *Coronavirus Disease 2019 (COVID-19) Situation Report—42*.
 - WHO. (2020b). *WHO characterizes COVID-19 as a pandemic*. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen>
 - Yan, J., Guo, J., Fan, C., Juan, J., Yu, X., Li, J., Feng, L., Li, C., Chen, H., Qiao, Y., Lei, D., Wang, C., Xiong, G., Xiao, F., He, W., Pang, Q., Hu, X., Wang, S., Chen, D., ... Yang, H. (2020). Coronavirus disease 2019 in pregnant women: A report based on 116 cases. *American Journal of Obstetrics and Gynecology*, 223(1), 111.e1–111.e14. <https://doi.org/10.1016/j.ajog.2020.04.014>
 - Yan, S., Song, X., Lin, F., Zhu, H., Wang, X., Li, M., Ruan, J., Lin, C., Liu, X., Wu, Q., Luo, Z., Fu, W., Chen, S., Yuan, Y., Liu, S., Yao, J., & Lv, C. (2020). *Clinical Characteristics of Coronavirus Disease 2019 in Hainan, China*. <https://doi.org/doi:https://doi.org/10.1101/2020.03.19.20038539>
 - Yuliana, L. W. (2020). Karakteristik gejala klinis kehamilan dengan Coronavirus disease (COVID-19). *Jurnal Ilmiah Kesehatan Sandi Husada*, 12(2), 726–734. <https://doi.org/10.35816/jiskh.v12i2.397>
 - Zhang, L., Jiang, Y., Wei, M., Cheng, B. H., Zhou, X. C., Li, J., Tian, J. H., Dong, L., & Hu, R. H. (2020). [Analysis of the pregnancy outcomes in pregnant women with COVID-19 in Hubei Province]. *Zhonghua Fu Chan Ke Za Zhi*, 55(3), 166–171. <https://doi.org/10.3760/cma.j.cn112141-20200218-00111>