

# Neonatal Outcomes Profile in Pregnant Women with Covid-19 Infection

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## Abstract

**Background:** This study aims to describe risk factors for vertical transmission of Covid-19 and report the clinical exterior Materials and Methods: The sampling technique is a total and univariate data processing to display the percentage. Results: 72 neonates of mothers who confirmed covid 19, not a single baby was confirmed after 24 hours of labor. The results showed that most maternity mothers with Sectio cesarean had as many as 52 respondents (72.2%). Based on the study results, nine mothers (12.5%) gave birth in fewer months (preterm). In confirmed maternity mothers covid 19, the majority of mothers were confirmed by 37 (51.4%) respondents affected by covid 19 and the minority of primipara mothers by 5 (6.9%) respondents. Conclusion: No baby has been confirmed positive after birth to a mother who has been confirmed positive for covid 19.

**Keywords:** Neonatal outcomes, Pregnant women, Covid 19

## 1. Introduction

Since March 14, 2020, a total of 96 confirmed cases in Indonesia, with several deaths of as many as six people, became the 65th country to positively confirm covid 19. Indonesia reported the case on March 2, 2020. As of February 19, 2021, the Ministry of Health reported 1,278,653 confirmed cases of covid-19, with several patients dying 34,489 (CFR 2.7%) (Covid 19 Task Force, 2021)

Pregnant women have a low immune system, so they are more susceptible to disease and infection. Because pregnant women have a low immune system, covid 19 can infect at any time (Murhan, 2021). Although the universal indication that is felt will be the same as other sufferers, pregnant women with congenital diseases, such as lung disease, asthma, or liver damage, want a more severe indication. Coronavirus in pregnant women will cause several diseases that give rise to severe indications, to cause death. Not only that, but women affected by severe covid 19 are also at risk of premature labor to death (Schwartz, 2020).

Before covid 19 entered Indonesia, maternal mortality (AKI) and infant mortality were serious problems. From the results of studies in Inggris, mothers with high-risk pregnancies are more prone to contracting covid 19 than women who do not have a risk. This will indirectly impact neonates born (Hutagaol IO, Arini A, 2021).

According to data from the Indonesian Obstetrics and Gynecology Association (POGI), from April 2020 to April 2021, 536 pregnant women tested positive for covid 19 in Indonesia. 51.9% did not have any symptoms, 72% were detected at 37 weeks gestation, and 3% of pregnant women died from complications caused by covid 19. Information from the Ministry of Health reported that there were

35,099 pregnant women affected by Covid-19 (Nurhasanah N, Maulida DA, 2021)

Data from the Indonesian Pediatricians Association (IDAI) until June 2021 nationally showed confirmation of Covid-19 in children aged 0-18 years reached 12.5%. This means that 1 in 8 confirmed cases of Covid-19 are children. IDAI data also shows case mortality (death rate) reaches 3% - 5%, so Indonesia has the highest death rate in the world; of all the data of children who died, 50% are toddlers (Suryawan, 2021)

The American Academy of Pediatrics reports that since the pandemic spread through June 17 and 2021, the number of infected children has reached 14.2% of the total people infected statewide or about 4.02 million children. But the child mortality rate due to Covid-19 in the U.S. is 0.22%.

In a study conducted on 108 pregnant women who were confirmed positive, the external baby that often occurs in the babies of confirmed mothers is lymphocytopenia, asphyxia, and thrombocytopenia (Covid 19 Task Force, 2021). A study conducted in China with 19 neonates of mothers who confirmed covid 19 found no fetal emergency, average gestational age of 38 weeks, and an average birth weight of 3292; no neonate confirmed covid-19 (Liu W, Wang J, Li W, Zhou Z, Liu S, 2020)

There were three deaths of newborns. The prevalence of neonates entering the ICU is 2%. 19 out of 444 neonates were born positive for COVID-19 (Di Toro F, Gjoka M, Di Lorenzo G, De Santo D, De Seta F, Maso G, 2021). Most neonates examined had a history of maternal COVID-19 infection (84%). Of the 25 neonate cases, 80% had symptoms of SARS-CoV-2 infection; the most common symptoms were respiratory distress syndrome (40%), with fever (32%), and food intolerance (24%) (Barrero-Castillero A, Beam KS, Bernardini LB, Ramos EGC, Davenport PE, Duncan AR, 2021).

In 2017 the Infant Mortality Rate (AKB) was 633; in 2018, it was 385; and in 2019, it was 429. Thus the Infant

Mortality Rate (AKB) in Central Sulawesi Province from 2017 to 2019 fluctuated. Causes of infant death are BBLR, asphyxia, sepsis, congenital abnormalities, and others (Central Sulawesi Provincial Health Office, 2021)

Researchers presented neonatal data from mothers who confirmed covid 19 at Undata Hospital In Palu city from March 2020 to July 2021, with several 72 respondents. This study aims to describe the risk factors for vertical transmission of COVID-19 from mother to baby. And report the neonate clinical exterior of the confirmed mother.

## 2. Material and Methods

This research was conducted at the Covid-19 Referral Undata Hospital in Palu City. The population in this study is a baby born to a mother who confirmed covid-19 starting from March 2020 to July 2021, several 72 babies in the Baby Room of Undata Hospital. Patients were confirmed COVID-19 based on data from polymerase chain reactions (PCR) swab test results whose samples were taken at the Health Center at 37 weeks gestation for the programmatic and after being admitted to the hospital for an evaluation swab test. The data is presented in the form of distribution based

on parity, gestational age, Type of Labor, Indication of Delivery, birth weight of the baby, APGAR score of the baby, and COVID-19 status of the baby. The gestational age in question is the gestational age when the patient is confirmed COVID-19 based on the results of the PCR swab test at the Health Center before the referral and after the hospital. Parity data is divided into categories; primigravida, sekundigravida, multigravida, and grandemultigravida. The status of COVID-19 infants is stated based on the results of the PCR swab test of newborns whose samples are taken a maximum of 24 hours after birth in the hospital.

Data processing is done using the SPSS Computerized Program using univariate data analysis and displaying data based on frequency.

## 3. Results

Since being appointed as one of the referral centers in Palu City starting from March 2020 to July 2021, Undata Hospital In Palu has carried out childbirth assistance both normally and in Sectio Caesarea (S.C.) for as many as 72 maternity mothers. Distributions from confirmed maternal patients are spelled out in the following table:

Table 1: Distribution of Confirmed Pregnant Women And Childbirth			
Variable		n	%
Parity			
Primipara		5	6,9
Secundipara		37	51,4
Multipara		21	29,2
Grandemultipara		9	12,5
Types of Labor			
Sectio Drying (SC)		52	72,2
Vaginal Delivery		20	27,8
Maternal Indications with SC			
Repeating Post SC		13	18,1
Old Partus		7	9,7
Hypertension		1	1,4
breach		3	4,2
Early Ruptured Amniotic Fluid (KPD)		8	11,1
Cephalopelvic Disproportion (CPD)		4	5,6
Covid 19		8	11,1
Placenta Previa		1	1,4
Central Rope Winding		1	1,4
Fetal Emergency		2	2,8
Gamelli		4	5,6
Gestational Age:			
Premature (<37 weeks)		9	12,5
Aterm (37-42 weeks)		63	87,5
Baby Status			
Live		70	97,2
Die		2	2,8
Baby PCR Results			
Positive		0	0
Negative		72	100
Baby's Birth Weight			
<2.500 gram		16	22,2
2.500-4.000 gram		56	77,8
APGAR Score:			
Asphyxia		16	22,2
No Asphyxia		56	77,8
Baby Care Room			
Neonatal Intensive Care Unit (NICU)		14	19,4
Normal Newborn Room		58	80,6
Diagnosis The baby in the treatment booth:			
Normal Baby		54	75,0
Respiratory Distress Newborn (RDN)		15	20,8
Sepsis Neonatorum		3	4,2

## 4. Discussion

In a study conducted on 72 neonates of mothers who

confirmed covid-19, not a single baby was confirmed after 24 hours of labor. In the systematic review conducted, there is no evidence to support that there is scientific evidence showing vertical

transmission of covid-19 from mother to baby during pregnancy (Smith V, Seo D, Warty R, Payne O, Salih M, Chin KL, 2020), (Dumitriu D, Emeruwa UN, Hanft E, Liao G V., Ludwig E, Walzer L, 2021).

This is in line with the research conducted by examining amniotic fluid results, the rest of the placenta, and amniotic membranes. There is no RNA at all Covid 19 virus in the intended part (Hosier H, Farhadian S, Morotti RA, Deshmukh U, Lu-Culligan A, Campbell KH, 2020) (Karimi-Zarchi M, Neamatzadeh H, Dastgheib SA, Abbasi H, Mirjalili SR, Behforouz A, 2020). This is not in line with systematic reviews that state that Covid 19 RNA is detected in the placenta (n =13) and Breast Milk (n=16), and there was the transmission of covid 19 in 5 scientific reviews conducted. Transmission occurs within the first 12 hours of the baby's birth (Do Amaral WN, de Moraes CL, Rodrigues APDS, Noll M, Arruda JT, 2020)

Seventy-two respondents of covid 19 confirmed mothers were referred to Undata Hospital In Palu; the majority occurred at the end of the 3rd trimester or before delivery. Pregnant women are susceptible to infection in the third trimester of pregnancy, in particular as a result of physiological changes that have an impact on decreased immunity in part of the body of pregnant women (Liang H, 2020), (Barrero-Castillero A, Beam KS, Bernardini LB, Ramos EGC, Davenport PE, Duncan AR, 2021), (Smith V, Seo D, Warty R, Payne O, Salih M, Chin KL, 2020). Therefore pregnant women should be more compliant with health protocols to prevent the risk of transmission of covid 19 (Abedzadeh-Kalahroudi M, Sehat M, Vahedpour Z, 2021). Cohort studies also show that maternal mortality is higher due to Covid 19 than not having Covid (Chinn et al., 2021)

The results showed that the majority of maternity mothers with a cesarean section, as many as 52 respondents (72.2%). Indications of cesarean majority caused by repeated post-section caesarian mothers, as many as 13 (27.8%), and caused each because of amniotic rupture early and covid itself by as many as eight respondents each (11.1%). Obstetrics problems cause the cause of cesarean delivery in covid mothers compared to covid itself, this is in line with research conducted in Iran that get a cesarean section delivery in mothers covid 19 is mostly due to obstetrics problems (Abedzadeh-Kalahroudi M, Sehat M, Vahedpour Z, 2021), and not due to covid itself, but more studies are needed to be related to the increase of S.C. in covid 19 patients.

Based on the results of a study conducted in Toronto, United States, IgG and IgM were detected in neonates born to mothers with confirmed Covid 19. Meanwhile, in another study, 3 out of 33 neonates through nasopharyngeal examination were positive for Sar Cov 2 RNA (Kirtsman et al., 2020)

Based on the results of the study found that there are nine mothers (12.5%) who give birth in fewer months (preterm). Based on the research results, mothers with covid 19 tend to be two times more likely to give birth to premature babies than mothers who are unaffected by covid 19 (Abedzadeh-Kalahroudi M, Sehat M, Vahedpour Z, 2021). This is because the Covid 19

infection can increase anxiety (Solichatin, 2021), and worsen the condition of pregnant women, causing premature rupture of amniotic fluid to force the mother to give birth to a baby in conditions not enough months (Dube R, 2020), (Akhtar H, Patel C, Abuelgasim E, 2020), (Martinez-Perez O, Prats Rodriguez P, Muner Hernandez M, Encinas Paredilla MB, Perez Perez N, Vila Hernandez MR, 2021).

In confirmed maternity mothers covid 19, the majority of mothers confirmed 37 (51.4%) respondents affected by covid 19 and the minority of primipara mothers is 5 (6.9%) respondents. No literature discusses in detail related to the relationship of parity with the incidence of covid 19 in pregnant women, but it is expected that all pregnant women should still follow the procedure of prevention of covid 19 and remain active at home during pregnancy to prevent the transmission of covid 19 considering that pregnant women are very susceptible to infection during pregnancy including Covid 19 (Mirbeyk M, Saghadzadeh A, 2021)

At birth, 16 babies (22.2%) were born with Low Birth Weights of < 2500 grams. Based on the results of research on mothers with covid 19 status with comorbid risk of giving birth to babies with low birth weight, this is because the accompanying comorbid disease during pregnancy can interfere with the process of fetus growth during pregnancy. Comorbid diseases in mothers that can interfere with fetal growth and have an impact on low birth weight, such as pre-eclampsia, Mellitus diabetes, and HIV AIDS (Villar J, Ariff S, Gunier RB, Thiruvengadam R, Rauch S, Kholin A, 2021), (Radityo AN, Rini AE, Anam MS, 2020), (Ethics R, Handayani KD, Hartiastuti SM, Diana V, Harahap A, Prasetya O, 2021). The study's results obtained babies who experienced asphyxia at birth, as many as 16 babies (22.2%). The accompanying diagnosis in infants born to the mother was confirmed at the time of treatment in the NICU; some babies experienced Respiratory Distress Newborn (RDN) as many as 15 babies (20.8%). Literature studies mentioned that mothers with covid 19 with pneumonia as a participant of covid 19 are more likely to give birth to babies with asphyxia at the time of delivery than pregnant women infected with covid 19 but asymptomatic symptoms (Abedzadeh-Kalahroudi M, Sehat M, Vahedpour Z, 2021). This is not in line with research conducted in Hubei China, mothers with pneumonia did not give birth to babies with the condition Asphyxia (Li N, Han L, Peng M, Lv Y, Ouyang Y, Liu K, 2020). But due to the limitations of this study there is no data related to maternal data with pneumonia obtained at the time of the study. This is not in line with research conducted in Hubei, China. Mothers with pneumonia did not give birth to babies with the condition Asphyxia (Li N, Han L, Peng M, Lv Y, Ouyang Y, Liu K, 2020). But due to the limitations of this study, there is no data related to maternal data with pneumonia obtained at the time of the study.

The study's results showed that no babies were confirmed positive after birth, even though the

mother was confirmed positive for covid 19. This means that there is no vertical transmission of transmission during pregnancy from mother to baby based on the results of this study. The clinical outcomes for babies from mothers who were confirmed to have COVID-19 were babies born prematurely, asphyxia, and low birth weight.

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