

RESEARCH THESIS

**CHARACTERISTICS, MATERNAL OUTCOMES, AND DELIVERY MODES
OF PREGNANT WOMEN WITH COVID-19 IN PASURUAN DISTRICT,
EAST JAVA**



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FACULTY OF MEDICINE

UNIVERSITAS AIRLANGGA

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**CHARACTERISTICS, MATERNAL OUTCOMES, AND DELIVERY MODES
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EAST JAVA**

Paper

To fulfill the requirements of the Research Module

Faculty of Medicine, Universitas Airlangga

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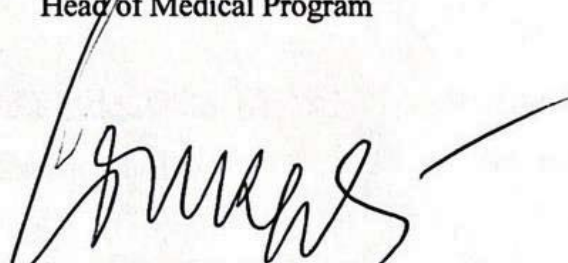


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EAST JAVA**

THESIS

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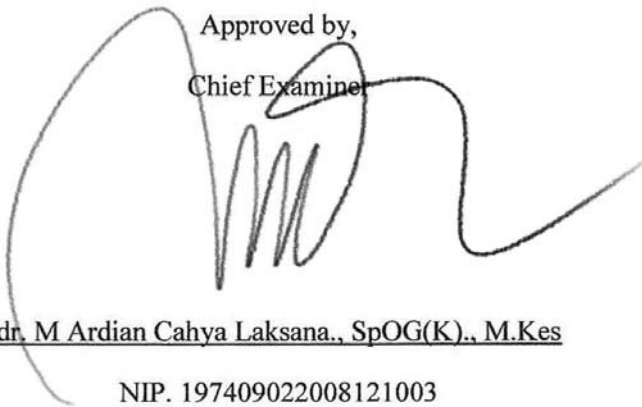
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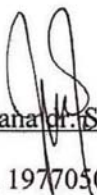
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By giving thanks to Allah SWT for all the blessings and guidance, so that the author can complete this scientific paper for fulfill the task of the Research Module as well as a requirement for graduation from the S1 Program Medical Education Faculty of Medicine Universitas Airlangga entitled “**Characteristics, Maternal Outcomes, and Delivery Modes of Pregnant Women With COVID-19 In Pasuruan District, East Java**” can be completed well. This thesis has been completed optimally, of course it cannot be separated from the help and assistance of input from various parties. Therefore, on this occasion the author would like to thank:

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The author understands the need of improvement for the writing of this thesis, therefore positive suggestions and criticisms from the readers are much anticipated. With this thesis, the writer hopes that it can provide benefits for all parties in need.

Surabaya, 29 September 2022

Sabrina Kemala Hapsari

SUMMARY

CHARACTERISTICS, MATERNAL OUTCOMES, AND DELIVERY MODES OF PREGNANT WOMEN WITH COVID-19 IN PASURUAN DISTRICT, EAST JAVA

The coronavirus disease (COVID-19) was declared a pandemic by the WHO in early 2020. COVID-19 may have various manifestations, ranging from asymptomatic to life-threatening conditions. In pandemic situations, pregnant women are included in the populations at risk. The physiological adaptations in pregnancy and the SARS-CoV-2 virulence can make pregnant women susceptible to the infection.

This study aims to know the characteristics and maternal outcomes of pregnant women with COVID-19 in Pasuruan District, East Java, during 2020-2021. With more specific purposes as follows; to know the maternal age, gestational age, and pre-existing comorbidities (obesity, Diabetes Mellitus, and hypertension) of pregnant women with COVID-19; to know the maternal outcome (pneumonia, preeclampsia, preterm birth, stillbirth, and maternal death) of pregnant women with COVID-19; to know the mode of delivery in pregnant women with COVID-19 in Pasuruan District, East Java.

This descriptive study used 362 samples using medical records conducted in two Pasuruan District Government Referral Hospitals, Bangil Regional Public Hospital, and Gratis Regional Public Hospital, from January 2021 until August 2022. The study design was an observational retrospective study that used pregnant women confirmed with COVID-19 by RT-PCR who gave birth at the hospital as the sample. The samples were taken by all sampling, a technique of taking all samples that meet the inclusion and exclusion data.

The age range of the majority of pregnant women (66%) was 21 to 34. A large number of COVID-19 diagnoses in pregnant women occurred in the third trimester (77.1%), while Hepatitis B infection was the most common comorbidity (5.8%)

compared with hypertension, DM, and obesity. More than half of patients (57.7%) did not experience a maternal problem. But, almost half experienced adverse outcomes. The most frequent adverse outcome found was preterm delivery (13.5%). Cesarean section (90%) was the mode of delivery in nearly all pregnant women with COVID-19 in the Pasuruan District.

ABSTRACT**CHARACTERISTICS, MATERNAL OUTCOMES, AND DELIVERY MODES
OF PREGNANT WOMEN WITH COVID-19 IN PASURUAN DISTRICT,
EAST JAVA**

Introduction: Early in 2020, the WHO declared COVID-19 a pandemic. Pregnant women were amongst the people most at risk during pandemics and were potentially more vulnerable to the infection due to the SARS-CoV-2 virulence and the physiological changes that occur during pregnancy.

Methods: This descriptive study, which included medical records from 362 samples, was carried out between January 2021 and August 2022 at the Bangil Regional Public Hospital and the Grati Regional Public Hospital, which are government referral hospitals in the Pasuruan District. The sample used in this study consisted of COVID-19-confirmed pregnant women who gave birth in a hospital and were selected through all sampling methods.

Result: The majority of pregnant women (66%) were aged between 21 and 34. Most pregnant women were diagnosed with COVID-19 in the third trimester (77.1%) and had Hepatitis B infection as the most frequent comorbidity (5.8%). Most patients (57.7%) did not experience a maternal problem. The most frequent adverse outcome found was preterm delivery (13.5%). Cesarean section was the most frequent (90%) mode of delivery.

Conclusions: The characteristics of the samples mainly were aged between 21 – 34 years, in the third trimester, and Hepatitis B infection was the most frequent comorbidity identified compared with hypertension, DM, and obesity. Most patients didn't experience a maternal problem, whereas nearly half experienced several adverse maternal outcomes, with preterm delivery as the most frequent outcome. Cesarean delivery was the mode of delivery in almost all pregnant women.

Keywords: characteristics, outcomes, mode of delivery, pregnancy, COVID-19

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LIST OF ABBREVIATIONS

ACE2	: Angiotensin-converting enzyme 2
AMA	: Advance maternal age
APGAR	: Appearance, Pulse, Grimace, Activity, and Respiration
ARDS	: Acute respiratory distress syndrome
ATP	: Adenosine triphosphate
BMI	: Body mass index
CD4+	: Cluster of differentiation 4
CD8+	: Cluster of differentiation 8
CD25+	: Cluster of differentiation 25
CDC	: Centers for Disease Control and Prevention
COVID-19	: Coronavirus Disease 2019
CXCL10	: C-X-C motif chemokine 10
DAMPs	: Damage-associated molecular patterns
DIC	: Disseminated vascular coagulopathy
DM	: Diabetes Mellitus
FoxP3	: Forkhead box P3
GGO	: Ground glass opacity
HELLP	: Haemolysis, elevated liver enzymes and low platelets
ICU	: Intensive Care Unit
IL 6	: Interleukin 6
JNC	: Joint National Committee
NICU	: Neonatal intensive care unit
NK	: Natural killer
pDCs	: Plasmacytoid dendritic cells
PPROM	: Preterm premature rupture of the membranes
RT-PCR	: Reverse transcription polymerase chain reaction
SARS-CoV-1	: Severe Acute Respiratory Syndrome Coronavirus 1
SARS-CoV-2	: Severe Acute Respiratory Syndrome Coronavirus 2
Th 1	: T helper 1
Th 2	: T helper 2
Th 17	: T helper 17

TLRs	: Toll-like receptors
TMPRSS2	: Transmembrane serine protease 2
Treg	: Regulatory T cell
UKOSS	: UK Obstetric Surveillance System
UNICEF	: United Nations International Children's Emergency Fund
WHO	: World Health Organization

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