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Original Research

Factors Related Health Status Among Pregnant Women With Confirmed Covid-19 In South Sulawesi, Indonesia

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ABSTRACT

Background: *Pregnant women are a vulnerable population to COVID-19 due to the high pathogenesis of the disease and its effects on pregnancy. Various studies have been conducted regarding pregnant women during the COVID-19 pandemic. However, limited studies regarding health status of pregnant women with confirmed COVID-19. This study was to identify factors related health status among pregnant women with confirmed COVID-19 in South Sulawesi.*

Methods: *Quantitative study with Cross Sectional design was conducted in this study. The sampling technique was non-probability sampling with a total sample of 37 pregnant women who were confirmed to be COVID-19. Data collection using google forms and data collection entry points from several health centers in Makassar. This variable evaluated with questionnaire by asking what the treatment status when confirmed COVID-19 (hospitalized or quarantine at home). The explanatory variable was maternal age, gestational age at confirmed COVID-19, parity, occupation, family income, frequency of confirmed COVID-19 and those variables were assessed by questionnaire. Bivariate analysis was analyzed using Chi-Square.*

Results: *There was significant correlation between gravidity with health status among pregnant women with confirmed COVID-19 (P=0.040, OR=4.667, 95%CI). There were no significant correlation between education, employment status, type of employment, and family income with health status among pregnant women with confirmed COVID-19 (P=0.19, P=0.19, P=0.793, P=0.503, 95%CI).*

Conclusion: *Identification of factors and descriptions of pregnant women with confirmed COVID-19 is important to provide an overview to nurses and other health workers as early detection and efforts to provide interventions to improve maternal and fetal outcomes.*

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INTRODUCTION

Coronavirus Disease (COVID-19) is a new disease that has shown a rapid increase in terms of cases and deaths since its first identification in December 2019. In February 2020, the World Health Organization (WHO) described the disease as COVID-19, the causative virus as "severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)" and declared it a pandemic (Guan et al., 2020). The incubation period for COVID-19 ranges from 5-6 days or 14 days for the longest incubation period (Kemenkes RI, 2020a).

Coronavirus clinical manifestations include fever, sneeze, and breathlessness, as well as some other symptoms of acute respiratory distress. However, serious symptoms such as pneumonia, respiratory distress syndrome, and renal failure can arise, results in death (Kemenkes RI, 2020b). Currently, the global number of confirmed COVID-19 cases is decreasing, as is the incidence rate in Indonesia. Meanwhile, South Sulawesi Province is in the sixth position with the highest number of cases at 61,215 (3.8%).

It was further explained that Makassar City was the area with the most COVID-19 cases compared to other areas in South Sulawesi (Gugus Tugas Percepatan Penanganan COVID-19, 2021). There is a paucity of information on COVID-19 and adverse pregnancy outcomes (Ramussen & Jamieson, 2020). However, women who are pregnant are a vulnerable group to COVID-19 due to the high pathogenesis of the disease and its effects on pregnancy (Schwartz & Graham, 2020). Since it is emergence in December 2019 until 2021 around 31.016 pregnant women infected COVID-19 (Lassi et al., 2021).

Pregnancy is an important period for a woman in her life but also a life-threatening event because during the pregnancy period, all pregnant women are at risk for complications or complications that require treatment during pregnancy (Mahajan & Sharma, 2014). During a pandemic, pregnant women and fetuses are particularly vulnerable to infectious diseases (Addi et al., 2020). Pregnant women are a high-risk population for contracting COVID-19 and the most commonly reported symptoms were cough, fever, fatigue and anosmia/ageusia (Lassi et al., 2021).

Based on previous study, among pregnant women confirmed COVID-19 about 7% were admitted intensive care unit (ICU), 8% required mechanical ventilation, and 2% of the women died (Lassi et al., 2021). This happens because conditions during pregnancy cause a decrease in partial immunity due to physiological changes so that it causes pregnant women to be more susceptible to virulent infections (Pradana et al., 2020).

COVID-19's effect on the mother and fetal development during pregnancy is unclear (Ramussen & Jamieson, 2020). In China, infection in pregnant women occurs in the third or late second trimester, but whether SARS-CoV-2 infection in the first trimester causes fetal defects or death is unknown. Several incidents of pregnant women with COVID-19 giving birth to preterm or low birth weight babies have been reported, but the link between these effects and COVID-19 has not been clearly explained. (World Health Organization, 2020).

Several other issues that are important to pregnant women are the psychological, physical impact, limited health services and contact with health workers, equipment for health protocols that are not owned by the public and the development of various variations of COVID-19 symptoms that can cause infection and impact on the fetus (Corbett et al., 2020). Various impacts can be experienced by pregnant women as a result of the crisis situation during the COVID-19 pandemic.

Various studies have been conducted regarding pregnant women during the COVID-19 pandemic (Ajayi et al., 2021; Ginting et al., 2013; Mizrak Sahin & Kabakci, 2021; Mortazavi & Ghardashi, 2021). However, more research is in the form of reviews, and limited studies regarding characteristics and health status of women in pregnancy with confirmed COVID-19. One study reported that there were associations between COVID-19 outcomes and socioeconomic status, based on health and behavioral indicators (Mena et al., 2021). Understanding the societal risk factors that make some groups particularly vulnerable is critical for more effective pandemic interventions in this and future pandemics. As a result, it is critical to conduct research on the health status of pregnant women with diagnosed COVID-19 in South Sulawesi.

The health status of pregnant women refers to maternal health and well-being that should be improved with prevent pregnant mother from the most common direct causes of maternal injury and death (World Health Organization, 2022). Hospitalized or self-quarantine is a treatment of COVID-19 that could be prevent pregnant women and their baby's injury. Quarantine and self-isolation can be carried out at home if the patient is positive for COVID with no symptoms or mild symptoms (Kementerian Kesehatan Republik Indonesia, 2021).

This research is very important as initial information to develop strategic nursing interventions related to the promotion, prevention and recovery of the health of pregnant women who have been diagnosed with COVID-19 in a comprehensive care. Thus, this study aims to identify factors related health status among pregnant women with confirmed COVID-19 in South Sulawesi.

MATERIALS AND METHOD

Quantitative study with Cross Sectional design was conducted in this study to identify factors related health status among pregnant women with confirmed COVID-19 in South Sulawesi, Indonesia. South Sulawesi Province is located on the eastern side of Indonesia and is one of the regions with higher number of confirmed COVID-19 cases in Indonesia (Gugus Tugas Percepatan Penanganan COVID-19, 2021). The population in this study were pregnant women in South Sulawesi. Non-probability sampling was used, with a total sample of 37 pregnant women who were confirmed to have COVID-19.

Data collection using google forms and data collection entry points from several health centers in Makassar. Prior of informed consent, it was explained that this questionnaire took 5-10 to answer the questions. Participant who agreed to participate in this study received inform consent via google form by responding with tick "I consent" Pregnant women in this study were given token of appreciation for their participation. Ethical approval for this study was obtained from the Ethics Commission of Health Research and Development Sint Carolus School of Health Sciences.

The outcome variable was health status of pregnant women with confirmed COVID-19. Health status of pregnant women with confirmed COVID-19 refer maternal condition during confirmed included hospitalized or self-quarantine at home. This variable evaluated with questionnaire by asking what the treatment status when confirmed COVID-19 (hospitalized or quarantine at home).

The explanatory variable was maternal age, gestational age at confirmed COVID-19, parity, occupation, family income, frequency of confirmed COVID-19 and those variables were assessed by questionnaire. Data analysis using univariate data analysis with frequency distribution and bivariate analysis using chi-square.

RESULTS

Characteristics of pregnant women with confirmed COVID-19

A total of 37 pregnant women with confirmed COVID-19 participated in this study. Table 1 shows characteristics data of pregnant women with confirmed COVID-19. The mean of maternal age of participants were 30.97±4.573 (20-40) and gestational age when confirmed COVID-19 were 5.32±2.334 (1-9).

The mean of gravida when confirmed COVID-19 of participants were 2.16±1.537 with 17 (45.9%) was primigravida and 20 (54.1%) was multigravida. The majority of participants with higher education (n=29, 78.4%) and low education (n=8, 21.6%). Most participants were housewife (n=25, 67.6) and employed (n=12, 32.4). Regarding the employment status, 21 (56.8%) participants were non health care staff and 16 (43.2%) working as health care staff.

For the family income, majority of the participants (n=27, 73%) who reported being more than minimum regional wage. The majority of participants frequency of confirmed COVID-19 were one time (35 (94.6%) and twice (2, 5.4%). Twenty-four participants (64.9%) were hospitalized when confirmed COVID-19 and 13 (35.1%) were self-quarantine at their home.

Table 1. Characteristics of Pregnant Women Confirmed COVID-19

Variabel	f (%)	Mean±SD	Min -Max
Maternal age		30.97±4.573	20 – 40
Gestational age		5.32±2.334	1 – 9
Gestational trimester			
Trimester 1	11 (29.7)		
Trimester 2	13 (35.1)		
Trimester 3	13 (35.1)		
Gravidity		2.16±1.537	1 – 9
Primigravida	17 (45.9)		
Multigravida/Grande	20 (54.1)		
Education			
Low education	8 (21.6)		
Higher education	29 (78.4)		
Employment status			
Employed	12 (32.4)		
Housewife	25 (67.6)		
Type of employment			
Health care staff	16 (43.2)		
Non health care staff	21 (56.8)		
Family income			
Under minimum regional wage	10 (27.0)		
Upper minimum regional wage	27 (73.0)		
Frequency of confirmed COVID-19			
Once	35 (94.6)		
Twice	2 (5.4)		
Health status			
Hospitalized	24 (64.9)		
Self-quarantine at home	13 (35.1)		

Factors related health status among pregnant women with confirmed COVID-19

Factors related health status among pregnant women with confirmed COVID-19 is shown in Table 2. Based on data analysis, there are five independent variables (education, employment status, type of employment, family income and parity). There was significant correlation between gravidity with health status among pregnant women with confirmed COVID-19 (*P*=0.040, OR=4.667, 95% CI). There were no significant correlation between education, employment status, type of employment, and family income with health status among pregnant women with confirmed COVID-19 (*P*=0.19, *P*=0.19, *P*=0.793, *P*=0.503, 95% CI*).*

Tabel 2. Factors related health status among women pregnancy with confirmed COVID-19

Variables	Health status		P value	OR
	Hospitalized (f,%)	Self-quarantine (f,%)		
Education				
Low education	8 (33.3)	0 (0.0)	0.19	1.813
Higher education	16 (66.7)	13 (100.0)		
Employment status				
Employed	11 (45.8)	1 (7.7)	0.19	10.154
Housewife	13 (54.2)	12 (92.3)		
Type of employment				
Health care staff	10 (41.7)	6 (46.2)	0.793	0.833
Non health care staff	14 (58.3)	7 (53.8)		
Family income				
Under min regional wage	7 (29.2)	3 (23.1)	0.503	1.373
Upper min regional wage	17 (70.8)	10 (76.9)		
Gravidity				
Primigravida	14 (58.3)	3 (23.1)	0.040	4.667
Multigravida/Grande	10 (41.7)	10 (76.9)		

DISCUSSION

The results of this study provide an overview of factors related health status among women pregnancy with confirmed COVID-19. Pregnant women and their fetuses are a cluster that is susceptible to infectious diseases. During a pandemic, pregnant women and fetuses are particularly vulnerable to infectious diseases (Addi et al., 2020). Pregnancy-related physiological and psychological changes will increase risk for infection, particularly when infection affects the cardiovascular and respiratory system. This may increase the risk of respiratory failure during pregnancy (Addi et al., 2020; Culp, 2020).

The results reported that the mean age of pregnant women with confirmed COVID-19 was in the normal reproductive age range, meaning they were not at risk. Maternal age is one of the important factors for pregnant women in relation to the condition of the mother and baby. Age 35 years is the age at risk. Women with Delayed childbearing carries a higher risk of maternal and obstetric complications (Londero et al., 2019). Pregnant women who were ≥35 years old had greater odds for preterm delivery, hypertension, superimposed preeclampsia, severe preeclampsia, and decreased risk for chorioamnionitis (Cavazos-Rehg et al., 2015).

The transmission of SARS-CoV-2 from mother to fetus in utero is still being questioned. Several studies have found viral separates in blinding fluid, umbilical cord blood, and newborns throat swabs from some patients. Another study also found newborns infected with COVID-19 (Chen et al., 2020; Dashraath et al., 2020). This infection disease causes progressive respiratory system disorders in the mother and stillbirth (2%), intrauterine growth retardation disorders (IUGR: 10%) and preterm birth in the fetus (Dashraath et al., 2020).

In our study, the confirmed COVID-19 pregnant women with higher education. Previous study has also shown the confirmed mother had higher education and more likely employed (Yang. et al., 2020). This result also reported that pregnant women who hospitalized had housewife and non-health care staff compared with pregnant women who working as health care staff. Healthcare workers with Covid-19 were more likely to have an identified COVID exposure, present less severely ill, and less likely to be admitted to the hospital (Zhao & Qiao, 2020). This result assumed that pregnant women who working as health care staff have more knowledge related treatment of COVID-19.

This study reported that there was correlation between gravidity and health status among pregnant women confirmed COVID-19. This result shown more primigravida mothers are hospitalized due to the condition of pregnant women with moderate and severe symptoms who require hospitalization. In line one study about characteristic clinical of pregnant women with COVID-19 in Wuhan, China reported that majority pregnant women was nulliparous (Zhao & Qiao, 2020). COVID-19 infection in pregnancy has a clinical manifestation and severity that is probably similar with those of non-pregnant adults. It may not be certainly correlated with poor maternal or perinatal outcomes (Elshafeey et al., 2020).

The limitations of this study were small samples of pregnant women who were diagnosed COVID-19 and psychological variables were not explored. Thus, further research is recommended to use a large number of samples and include psychological variables to assess the health status of pregnant women confirmed COVID-19.

CONCLUSION

This study identity factors related health status among pregnant women who were confirmed COVID-19 in South Sulawesi, and highlighting gravidity was significant correlation with health status of pregnant women with confirmed COVID-19. Our result show that the majority of pregnant women who confirmed COVID-19 had high education, housewife and once diagnosed with COVID-19. Identification of factors related health status of pregnant women with confirmed COVID-19 is important to provide an overview to nurses and other health workers as early detection and efforts to provide interventions to improve maternal and fetal outcomes.

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