

# COVID-19 Pandemic: Maternal Anxiety Increases During Pregnancy, Indonesia



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## ABSTRACT

**Introduction:** The anxiety of pregnant women during the Covid-19 pandemic increased compared to pregnancy in ordinary conditions because pregnant women are one of the populations vulnerable to Covid-19 infection. The Covid-19 Pandemic can affect the health of pregnant women and fetuses, even feared increased morbidity and mortality. This study aimed to determine the anxiety of pregnant women, especially related to maternal and infant health in the Covid-19 pandemic.

**Method:** This research is using a quantitative descriptive method with a cross-sectional design. The sample in this study were all pregnant women who were willing to take part in this study. Respondents came from three islands in Indonesia, namely Java, Sulawesi and Sumatra. The sampling technique used accidental sampling; as many as 20 respondents carried out checks at health facilities during the pandemic Covid-19. Researchers adopted the Pregnancy Stress Rating Scale (PSRS) instrument for 36 items statement and converted it in a google form for online surveys. The data analysis in this study used a frequency distribution.

**Results:** The results showed that most of the pregnant women who experienced a severe level of anxiety in "finding safe health facilities for mothers and babies during pregnancy, and childbirth" (32.3) with a tertiary level of education (71.4), live outside the island of Java (83.3), and anxiety increased in the second trimester (61.5) and the third trimester (66.7).

**Conclusion:** The emotional well-being of pregnant women must be maintained to produce a good quality pregnancy outcome, so that health workers need to identify pregnant women's anxiety early to minimize its effects. In addition, pregnant women must have the self-awareness to assess the health conditions, including anxiety during the pregnancy process.

**Keywords:** *anxiety, maternal, self-awareness.*

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## INTRODUCTION

The Covid-19 pandemic has a serious impact on humans around the world, it is undeniable that especially pregnant women experience concern and anxiety about this condition.<sup>1</sup> The anxiety of pregnant women during the pandemic has increased compared to pregnancy in normal conditions.<sup>2</sup> During pregnancy, a woman's physiological and hormonal changes result in a decrease in maternal immunity, making her more susceptible to infection, so that pregnant women become one of the populations susceptible to Covid-19 infection which can affect the health of pregnant women and the fetus and even increase the morbidity and mortality of mothers and babies.<sup>3,4</sup> The results showed that clinical anxiety

of pregnant women during the Covid-19 pandemic reached 63-68%.<sup>4,5</sup> In Indonesia, the Covid-19 pandemic has caused anxiety for pregnant women that varies from severe to very severe<sup>6</sup>, but there is no accurate data from the ministry of health regarding the anxiety of pregnant women during this pandemic.

During the Covid-19 pandemic, pregnant women showed clinical anxiety because of the information on the number of Covid-19 sufferers that increased over time, the number of deaths from people infected with Covid-19, and concerns about family health.<sup>4</sup> In addition, pregnant women are worried about having repeat visits in antenatal care (72.7%), worried about the safety of the fetus (52.1%), worried about contracting Covid-19 infection

(39.8%), and the effects on the mother and babies.<sup>1,7,8</sup> Label et al stated that there were concerns about the threat of Covid-19 on the health of mothers and fetuses, and not getting optimal perinatal services<sup>5</sup>, due to delays in pregnancy examinations and classes of pregnant women. Anxiety in pregnant women during a pandemic is an impact of concerns that arise from the environment and the health of pregnant women.

Anxiety during pregnancy has adverse effects on the health of both the mother and the fetus, especially during the Covid-19 pandemic.<sup>5</sup> Pregnant women with anxiety affect pregnancy outcomes such as miscarriage, premature birth, low birth weight<sup>2,9</sup>, stunted infant development, and changes in infant behavior during infancy.

In addition, Rathbone and Prescott stated that prenatal anxiety had a negative impact on mothers with the appearance of symptoms of preeclampsia, excessive nausea, vomiting, and postpartum depression.<sup>9,10</sup> Anxiety during untreated pregnancy has a long-term impact on women, babies, and families' mental and physical health.

Depression, anxiety, and stress conditions during pregnancy are often not detected during treatment by health workers, so there is no prevention and treatment given to sufferers. In addition, most pregnant women and their families are not aware of their psychological conditions. The government has facilitated the care of pregnant women through an integrated antenatal care program by providing psychological services in early pregnancy. It is different from Selix and Goyal in that the recommendation for screening at the beginning of each trimester is because pregnant women's anxiety can appear at any time.<sup>11</sup> Therefore, it is crucial to measure prenatal anxiety to reduce somatic, psychosomatic symptoms and improve the quality of life of pregnant women.<sup>10</sup> Based on the explanation above, this study aims to determine pregnant women's anxiety levels, especially regarding the health of mothers and babies during the Covid-19 pandemic, given the lack of psychological data on pregnant women affected by the Covid-19 pandemic in health screening.

## METHODS

### Study Design

This study employed a quantitative descriptive method with a cross-sectional design conducted in February – March 2021 on three islands, Indonesian, namely Java (Yogyakarta), Sumatra (Pangkal Pinang), and Sulawesi (Manado). The choice of the location of this study was to determine the distribution of anxiety experienced by pregnant women universally in the COVID-19 pandemic, considering that the country of Indonesia consists of 1,340 ethnic groups with social, cultural, and religious diversity.

### Sample selection

This study enrolled all pregnant women who consented to participate in research

activities. The study was conducted when the government imposed a lockdown and restrictions on antenatal care visits at health facilities. The sampling technique used accidental sampling as many as 20 respondents who carried out examinations at health facilities during the Covid-19 pandemic. The inclusion criteria for taking the sample are as follows: the pregnant women can read and write, while the exclusion criteria are those who do not have internet access to fill out the google form.

### Assessment

This study used an instrument developed by Chung-Hey Chen di Taiwan, namely the Pregnancy Stress Rating Scale (PSRS), 36 statement items consisting of five factors with Cronbach's value  $\alpha = 0.92$ .<sup>12</sup> The researcher adapted the instrument through the forward translation stage (midwife and bilingual person) into Indonesian and tested the validity-reliability on 20 pregnant women with Cronbach alpha (0.94) before using it in this study. The five factors include; factor 1 "anxiety due to seeking safe health facilities for mother and baby during pregnancy, childbirth, and childbirth," factor 2 "anxiety due to infant care and changes in family relationships," factor 3 "anxiety from identification of the mother's role," factor 4 "anxiety seeking social support," and factor 5 "anxiety due to changes in physical appearance and function". The instrument rating scale uses a Likert scale, which is not worried to very worried (0-4). Researchers converted the PSRS-36 instrument into a google form for an online survey of pregnant women.

### Statistical Analysis

The data analysis of this study used a frequency distribution to determine the percentage of anxiety experienced by pregnant women during the Covid-19 pandemic.

## RESULTS

The results of this study identified the anxiety of pregnant women during their pregnancy from 3 islands in Indonesia, namely Java, Sulawesi, and Sumatra, as follows:

Based on [table 1](#) shows that most of the respondents in this study were pregnant

women aged 25-30 years (65), a college education level (70), most of the work (70), come from urban areas (60), is Muslim (70), comparable to primigravida and multigravida pregnancies (50), most of them are in the second trimester (65). They have no comorbidities (90), the majority of pregnant women have antenatal care visits > four times (75) at clinics or public health centers (52, 4), the pregnancy interval was mostly >1 year (88.9), most of the previous labor history was normal (88.9). There was no history of previous labor complications (100).

Based on [table 2](#) shows that pregnant women who experience severe levels of anxiety are mostly higher education levels (71.4), come from Sulawesi (83.3) and Sumatra (80), and anxiety of pregnant women increases with age pregnancy third trimester (66.7) and second trimester (61.5).

Based on [table 3](#) shows that 32.3 respondents who experienced anxiety during pregnancy were due to factor 1, namely "anxiety due to looking for safe health facilities for mothers and babies during pregnancy, childbirth, and childbirth," factor 2 (22.7) "anxiety due to treating babies and changes in family relationships" and factor 3 (20.1) "anxiety from the identification of the mother's role."

## DISCUSSION

The study identified the anxiety of pregnant women during the Covid-19 pandemic on three islands in Indonesia (Java, Sumatra, and Sulawesi). The results of identification of anxiety of pregnant women show that most respondents experience severe level of anxiety with a higher education level (71.4), come from the island of Sulawesi, to be precise in the Manado area (83.3%), and anxiety increases in the 3rd trimester of pregnancy (66.7%). In addition, respondents experienced anxiety, reaching 32.3% in finding safe health facilities for mothers and babies during pregnancy, childbirth, and childbirth (factor 1).

During the Covid-19 pandemic, pregnant women experienced anxiety during the pregnancy process to childbirth from various maternal and fetal health and family health factors. Mayor et al. stated that pregnant women's anxiety reached a

**Table 1. General Characteristics of The Study Sample.**

No.	Characteristics Respondent	Total (%) N=20
1.	<b>Age of pregnant women</b>	
	< 25 years	1 (5)
	25-30 years	13 (65)
2.	<b>Education level</b>	
	High school	6 (30)
3.	<b>Occupations</b>	
	Does not work	6 (30)
4.	<b>Geographic residence</b>	
	Urban	12 (60)
	Rural	8 (40)
5.	<b>Religion</b>	
	Muslim	14 (70)
6.	<b>Parity</b>	
	Primigravida	10 (50)
7.	<b>Gestational age</b>	
	1st trimester	1 (5)
	2nd trimester	13 (65)
8.	<b>Pregnancy comorbidities</b>	
	There are comorbidities	2 (10)
9.	<b>ANC check-up</b>	
	<4	5 (25)
	>4	15 (75)
10.	<b>ANC routine checkpoint</b>	
	Clinic or PHC	11 (52.4)
	Independent practice doctor	6 (28.6)
11.	<b>Pregnancy spacing</b>	
	<1 year	1 (11.1)
12.	<b>History of labor</b>	
	>1 year	8 (88.9)
	Normal	8 (88.9)
13.	<b>History of complications of childbirth</b>	
	Sectio cesaria	1 (11.1)
	There are complications	0 (0)
	No complications	20 (100)

scale of 7.6 from a scale of 1-10. Pregnant women experience confusion in choosing a place for antenatal care (ANC) checks and safe delivery planning; even pregnant women and their families prefer to make ANC visits by telephone.<sup>13</sup> Du et al's research in Shanghai states that 85% of

pregnant women reduce direct perinatal care and replace it with online consultations to avoid crowds in health facilities.<sup>14</sup> This condition impacts the majority of pregnant women (71.9), reducing or even stopping routine ANC care.<sup>15</sup> Coxon et al. Explained that discontinuation or

irregular ANC treatment increases the cost of pregnancy outcome.<sup>16</sup> This is due to the lack of intensity of health workers in monitoring pregnant women and the fetus regularly, so there may be delays in prevention and treatment related to health during the pregnancy process, and it can even increase maternal morbidity.<sup>17</sup> In line with the findings of this study that pregnant women experience 32.3% anxiety in seeking safe health facilities for mothers and babies during pregnancy and childbirth.

Pregnant women experience confusion in accessing ANC care because they are worried that contracting or being infected with Covid-19 is the main trigger for maternal anxiety.<sup>15</sup> In addition, pregnant women are one of the vulnerable groups infected, so it has a negative impact on the health of the mother and the fetus.<sup>1,7,8</sup> Kalove et al. stated that pregnant women aged >30 years are considered risky pregnancies and are more easily depressed by the condition of their pregnancy<sup>18</sup>, while Ben-Ari et al. explained that anxiety was higher because of the fear of being infected with Covid-19 in pregnant women at a young age and vulnerable health.<sup>19</sup> In line with the findings of this study that 65% of pregnant women are 25-30 years old.

This study found that pregnant women experience severe levels of anxiety for each of the first, second, and third trimesters of pregnancy, but most of the anxiety occurs in third-trimester pregnant women reaching 66.7%. Generally, anxiety symptoms during the pregnancy process occur in the 3rd trimester with mild to severe degrees because of concerns about childbirth, baby care, and others.<sup>20</sup> This condition was the same as during the Covid-19 pandemic, as Nanjundaswamy et al. explained that most pregnant women in the third trimester experienced increased anxiety related to Covid-19 (69.5).<sup>8</sup>

Another study stated that during the Covid-19 pandemic, pregnant women experienced anxiety for each trimester, but the worst anxiety occurred in pregnant women in the third trimester and significantly compared to the first or second trimester. This is because pregnant women in the third trimester are worried and even afraid of the consequences of being infected with Covid-19, while the

**Table 2. Distribution of Education Frequency, Region, and Pregnancy Age Based on Anxiety Levels of Pregnant Women.**

No.	Characteristics Respondent	Anxiety Levels (%)					
		Mild		Moderate		Severe	
1	Education level						
	High school	1	(16.7)	2	(33.3)	3	(50)
	Collage	1	(7.2)	3	(21.4)	10	(71.4)
2	Region of origin						
	Java	2	(22.2)	2	(22.2)	5	(55.6)
	Sumatra	0	(0)	1	(20)	4	(80)
	Sulawesi	0	(0)	1	(16,7)	5	(83.3)
3	Gestational age						
	1st trimester	0	(0)	0	(0)	1	(100)
	2nd trimester	0	(0)	5	(38.5)	8	(61.5)
	3rd trimester	2	(33.3)	0	(0)	4	(66.7)

**Table 3. Distribution of Pregnant Women Anxiety Frequency Based on Five Predictor Factors.**

Anxiety Factors for Pregnant Women	Total Score (%)
Factor 1	471 (32.3)
Factor 2	330 (22.7)
Factor 3	293 (20.1)
Factor 4	126 (8.7)
Factor 5	236 (16.2)

baby is not yet born.<sup>4,21</sup> Unlike the case with Ding et al.'s study, pregnant women's anxiety during the pandemic occurs in the second trimester.<sup>22</sup> In addition, differences in the areas where pregnant women lived in Sulawesi, Sumatra, and Java increased the prevalence of severe anxiety (83.3%, 80%, and 55.6%) during the pregnancy process during the Covid-19 pandemic. The research results in China explain that the intensity of anxiety of pregnant women for each region is different.<sup>9,23</sup> In line with Liu et al.'s research, regional differences with various characteristics and attitudes of pregnant women towards Covid-19, cultural, social, and belief backgrounds indicate excessive anxiety.<sup>24</sup>

Moyer et al. explained that apart from pregnant women with vulnerable ages and pregnancy in the 3rd trimester, the level of education makes them more prone to experience concerns related to Covid-19 because of changes during pregnancy and the proliferation of various health information in preventing the transmission of Covid-19.<sup>13</sup> This study indicates that pregnant women who experience severe levels of anxiety are mostly college-educated, 71.4%. Maharlouei et al.

explained that the higher a person's education level, they have good knowledge regarding Covid-19.<sup>15</sup> because pregnant women can access more and more correct information about Covid-19.<sup>22</sup> In line with research in Russia, pregnant women who can access and follow various information about Covid-19 through social media are closely related to increased anxiety.<sup>25</sup> The high level of education makes a person curious about various news reports in the media regarding the Covid-19 case, its impact, the symptoms that infected with Covid-19 and others, so that the greater the knowledge and understanding, the higher the knowledge and understanding the worry and anxiety it causes.

In contrast to Zhang et al., pregnant women experience increased anxiety when their education level is low and do not trust information about Covid-19.<sup>9,22</sup> The high or low level of education of pregnant women affects knowledge related to Covid-19. The high level of public knowledge regarding Covid-19 can make them take quick and precise prevention, be aware of the symptoms it causes, and so on. However, this condition needs attention because high or low knowledge

can become a double-edged sword<sup>15</sup> which contributes to triggering anxiety, especially in pregnant women during the pandemic.

There are three limitations in this study; first, the total number of respondents who filled out the online survey was only 20 pregnant women because the survey conducted when the government imposes restrictions on carrying out routine antenatal care at health facilities so that respondents who filled out the online survey were only pregnant women who made regular visits, and willing to take part in this research. Second, data analysis from the online survey results was only carried out by quantitative descriptive analysis because the respondents were less than the minimum sample limit. Third, the anxiety instrument in this study adapted the PSRS-36 instrument with an incomplete stage through forwarding translation, back translation, harmonization, pilot study, and evaluation of the internal structure. In addition, the instrument has not focused on the Covid-19 pandemic. The hope is for the next researcher or service to screen pregnant women's anxiety during the Covid-19 pandemic using a unique instrument developed for anxiety during the pandemic so that the assessment of pregnant women's anxiety is in accordance with the conditions felt by respondents.

## CONCLUSION

Pregnant women have the potential to experience increased anxiety during the pregnancy process and exacerbated by the Covid-19 pandemic, especially in accessing safe health facilities, supported by the level of education, gestational age, and the origin of the pregnant mother. The emotional well-being of pregnant women must be maintained to produce a good quality pregnancy outcome so that health workers need to identify/screen pregnant women's anxiety early to minimize its effects and plan for further treatment. In addition, pregnant women must have the self-awareness to assess the health conditions they feel, including anxiety during the pregnancy process.

## CONFLICT OF INTEREST

There is no conflict of interest in this study.

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## ETHICS APPROVAL

Ethical approval was obtained from The Health Research Ethics Committee of Universitas 'Aisyiyah Yogyakarta (No. 1362/KEP-UNISA/I/2021). Participation was entirely voluntary. As an incentive, participants received transport refunds.

## AUTHOR CONTRIBUTION

The entire research team contributed fully to the research and preparation of this article.

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