



Anxiety and Depression among Pregnant Women during the Covid-19 Pandemic: A Web-Based Cross-Sectional Survey

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ABSTRACT

Background: Pregnant women experience heightened symptoms of anxiety and depression substantially during the Covid-19 pandemic which is significantly linked to Covid-19 specific concerns about threats to their own lives, the health of their babies, not getting enough prenatal care, and social isolation. This level far exceeds what is usually expected during pregnancy and that experienced by other groups of people during the current pandemic. Social support and physical activity seem to be became a protective resilience factor. Given the known effects of stress on pregnancy, infant, and child outcomes, there is an urgent need to support pregnant individuals during this critical period to reduce long-term negative outcomes.

Research objectives: The purpose of this study was to determine the prevalence of symptoms of anxiety and depression in pregnant women during Covid-19 pandemic and identifying factors that related to depressive anxiety in pregnant women during the Covid-19 pandemic.

Research method: Samples were recruited online by inviting pregnant women in Indonesian. The number of participants were 138 participants. The anxiety and depression questionnaire during pregnancy were filled out by respondents online. Bivariate correlation was used to determine factors related to anxiety and depression in pregnant women during the pandemic Covid-19. Regression Logistics was used to identify the factors that most influence the symptoms of anxiety and depression that clinically improved.

Results: A total of 138 pregnant women participated in this study. The majority of the women was 20 - 35 years old (n = 98, 71%). Fifty percent of the women were married graduated from junior or senior high school (n = 69), with majority (76.8%) of respondents (n = 106) were unemployed. Most of gestational age of pregnant women in the third semester (n = 60, 43.5%), with one child (n = 54, 39.1). There were significant differences in the anxiety (t = -6.14, p = <.001).

Conclusion: The women who had high depression during Covid-19 pandemic has less likely anxiety than those women who had low depression during Covid-19.

Keywords: Anxiety, Depression, Pregnant Women, Covid-19, Pregnancy

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Introduction

Covid-19 has had a huge psychological influence on societal mental health, specifically widespread despair and anxiety in
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the disease's early stages(1). Accurate information from credible sources is critical in tackling the worldwide health crisis with Covid-19, with disinformation fuelling public



fear and worry(2, 3). Anxiety plays a role in the success of public health initiatives to combat the pandemic(4, 5). Pregnant women's anxiety caused by Covid-19, behavioral adaptation, and information sources used by pregnant women can all have an impact on maternal health and fetal development(6).

The government's stringent policies on large-scale social restrictions meant to control the spread of Covid-19 are drastically altering the daily routines of the people, particularly pregnant women(7). Pregnant women were identified as a vulnerable population and urged to segregate themselves as a precaution against Covid-19 infection(8, 9). As a result, this population should limit face-to-face social contact, stay at home, and only leave for important reasons(10). Pregnant women's lifestyle choices have a significant impact on maternal health and fetal growth(11).

The Covid-19 epidemic has increased concern among pregnant women. Women prioritize their elderly relatives, then their children, and last their unborn children. More than half of women are concerned about their health (12, 13). Government directives on social separation have resulted in significant behavioral changes among pregnant patients. Stressed-out pregnant women may experience indirect negative impacts on their physical and mental health (14). It is critical to understand this and support pregnant women by providing correct and up-to-date information. Television newscasts continue to be the most popular source of information. Some pregnant women use Facebook, WA, or other social media to get information, which raises worries about the spread of disinformation via social media (15, 16). This information can be utilized to guide pregnant women's anxiety, behavior modification, and health information efforts, indicating the most effective platform for communicating with pregnant women (17).

Given the risk of negative psychological, physiological, and financial outcomes, in addition to social isolation, it is critical to identify the incidence of depressive symptoms among pregnant women during this outbreak and to discover protective factors so that tailored interventions can be administered as soon as possible(9). The Indonesian governments universally recommended social distancing may be especially problematic during pregnancy because social support plays an important role in preventing the negative effects of stress. The goal of this study was to find out how common anxiety and depression symptoms were present in pregnant women during the Covid-19 outbreak, and indicators related with depressive anxiety in pregnant women were identified.

Methods

Study Design

A descriptive cross-sectional study design with a convenience sampling was conducted. Data were collected from June to November 2022.

Setting and Participants

Eligible participants are provided with an internet link to a survey created with the Google Forms app. This tool allows the creation of online surveys and collects data automatically in spreadsheets. Filling out an online questionnaire is a good method to use in research. This method will be chosen for its practicality and simplicity. This study recruited pregnant women across Indonesia through social media to complete an online survey. Questionnaires will be shared via Facebook, WA, and Instagram.

The inclusion criteria are pregnant women over the age of 18 who are in the first, second or third trimester of their pregnancy, live in Indonesia, can read and write Indonesian. Exclusion criteria are respondents who do not have access to the Internet.

A minimum sample size of 553 was determined using G*Power software version 3.1.9.2 to carry out the logistic regression with the assumption of $\alpha=0.05$, power level=0.8,



and an odds ratio of 1.35 as a reference from a pilot study of the research. Anticipating a 25% attrition rate, this study recruited 687 women.

The number of participants was recruited based on strength analysis using the G*Power program. A total of 100 participants will provide 80% statistical strength at a significance level of 5% (double-sided test) for small to moderate effect sizes ($d = 0.3$). 27 additional subjects were included to consider the level of anticipation with 30% in community studies

Ethical consideration

Ethical approval was obtained from the Institutional Review Board of AKBID Tahirah Al-BaetiBulukumba (No.074/KESBANGPOL/VII/2022). Ethics research aims to ensure confidentiality, protect the identity of respondents, and respecting the rights of respondents by seeking therapeutic consent. The nature of participation in this study is voluntary, therefore the researcher will give freedom to participants who are eligible to participate or not in the study. The researcher will also give permission to the respondent to stop at any time participation, both before and during the study. Eligible participants signed consent to confirm their willingness to participate or not in the study.

Study Procedure

The study collected data with an online approach because it was not possible to conduct institutional-based sampling surveys during this outbreak period. Relying on a network of researcher with midwives and gynecologists in Indonesia, one-page recruitment posters will post/repost within their "WhatsApp, Line, Facebook, and Twitter" account groups. This poster contains

a brief introduction to the background, purpose, procedure, voluntary nature of participation, statements of anonymity and confidentiality, and notes for filling out the questionnaire, as well as an online questionnaire link. Eligible participants are instructed to fill out a questionnaire by clicking on the link. Questionnaires are distributed by pregnant women; we do not limit our samples to Makassar pregnant women only. Pregnant women from other provinces are also eligible to take part in this survey if they are willing to participate.

Data Analysis

Analysis was performed using SPSS version 17th for Windows. Descriptive analyses were used to present frequencies, percentages, mean and standard deviation in demographic data, health characteristics, anxiety, and depression during Covid-19 among pregnant women.

Independent t-tests were used for examining the relationships among anxiety and depression during Covid-19. Chi-square was used to examine the associations demographic factors, health characteristics and depression during Covid-19, with a statistical significance of $p\text{-value} \leq 0.05$.

Results

Demographic Factors and Health Characteristics

A total of 138 pregnant women participated in this study. The majority of the women was 20 - 35 years old ($n = 98, 71\%$). Fifty percent of the women were married graduated from junior or senior high school ($n = 69$), with majority (76.8%) of respondents ($n = 106$) were unemployed. Most of gestational age of pregnant women in the third semester ($n = 60, 43.5\%$), with one child ($n = 54, 39.1$).

Table 1. Demographic Factors and Health Characteristics of Study Sample (n=138)

Characteristic	n	%
Age		
≤ 19 years old	11	8.0
20 – 35 years old	98	71.0
>35 years old	29	21.0



Level of education

Low education(≤ Elementary school)	21	15.2
Middle education (Junior and high school)	69	50.0
High education (≥ College)	48	34.8

Occupation

Unemployed	106	76.8
Employed	32	23.2

Gestational Age

First semester	26	18.8
Second semester	52	37.7
Third semester	60	43.5

Parity

One child	54	39.1
Twochildren	41	29.7
>3 children	43	31.2

Anxiety and Depression among Pregnant Women.

The median score of depression was 42.00 (mean = 41.53), which was used as the cut-off point to categorize low (0-42) and high (42-64) depression. A total of 49.3% of the participants (n = 68) reported a high depression and 50.7% of the participants (n = 70) reported a low depression. The

independent t-tests showed that, between pregnant women with high depression and low depression, there were significant differences in the anxiety ($t = -6.14, p < .001$). The women who had high depression during Covid-19 pandemic has less likely anxiety than those women who had low depression during Covid-19.

95

Table 2. Relationships between Anxiety and Depression of Study Sample (n=138)

Variable	Depression		t
	Low Depression (n = 70)	High Depression (n = 68)	
	Mean ± SD	Mean ± SD	
Anxiety	85.81 ± 20.51	102.99 ± 10.66	-6.14***

t: Independent T-test * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Relationship among Demographic factors, Health Characteristics and Depression during Covid-19 among Pregnant Women

The chi-square showed that, between pregnant women with high depression and low depression, there were not significant

differences between demographic factors (age, education level, occupation) and health characteristics (gestational age and parity) with depression among pregnant women during Covid-19.

Table 3 Relationships among Demographic Factors, Health Characteristics, Depression during Covid-19 among Pregnant Women of the Study Sample (n=138)

Variable	Depression		χ ²
	Low Depression	High Depression	



	(n = 70)	(n = 68)	
	n (%)	n (%)	
Age			
≤ 19 years old	5 (7.1)	6 (8.8)	
20 – 35 years old	55 (78.6)	43 (63.2)	4.32
>35 years old	10 (14.3)	19 (27.9)	
Level of education			
Low education (≤ Elementary school)	8 (11.4)	13 (19.1)	
Middle education (Junior and high school)	32 (45.7)	37 (54.4)	4.52
High education (≥ College)	30 (42.9)	18 (26.5)	
Occupation			
Unemployed	51 (72.9)	55 (80.9)	1.25
Employed	19 (27.1)	13 (19.1)	
Gestational Age			
First semester	14 (20)	12 (17.6)	
Second semester	21 (30)	31 (45.6)	3.71
Third semester	35 (50)	25 (36.8)	
Parity			
One child	28 (40)	26 (38.2)	
Two children	25 (35.7)	16 (23.5)	3.90
>3 children	17 (24.3)	68 (49.3)	

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

$\chi^2 = \text{Chi-square}$

Discussion

Based on the results of this current study shows that pregnant women experience an increase in anxiety during the Covid-19 pandemic. The Covid-19 pandemic has impacted the psychology of pregnant women from moderate to severe. This research is similar to previous studies that showed that pregnant women experienced increased anxiety during the Covid-19 pandemic(12, 18).

During the Covid-19 pandemic in Indonesia, pregnant women faced mental problems caused by Covid-19, such as symptoms of depression and anxiety than women who were not pregnant. Several studies report that pregnant women's susceptibility to emotional, psychological, and stress changes is a risk factor that can aggravate the negative factors of the Covid-19 pandemic(19-21). The current study showed that pregnant women who experience anxiety and depression are caused by various problems, including the social economy, family, work, and education level.

The results of the research show that the high level of anxiety and stress in pregnant women changes in behavior occur during pregnancy during the Covid-19 pandemic caused by lack of face-to-face visits, fear of interacting outside due to the high incidence of Covid-19 infection, fear of food supplies that are not available, to domestic conflicts that occur(22-24). These factors directly change the level of maternal anxiety and stress during the Covid-19 pandemic to increase.

The psychological problems faced by pregnant women during the Covid-19 pandemic increase anxiety. Pregnant women exposed to Covid-19 may easily experience depression and fear with the current condition of their pregnancy, and this can trigger negative thoughts and risk of depression. Increased anxiety and stress will negatively affect the fetus and the mother's health, such as premature birth, abortion, and low birth weight (BBLR)(25, 26).

Conclusions



The psychological problems of pregnant women during the Covid-19 pandemic are in the form of increased anxiety, which is influenced by various factors such as age, education, economy, employment, and parity. Pregnant women's readiness to face childbirth, social support and the threat of the spread of Covid-19 are also included in the anxiety factors of pregnant women. Judging from what is experienced by pregnant women that can affect pregnancy, fetal health, and childcare, it is necessary to make preventive, promotive, and curative development efforts as the main step in providing health care to pregnant women during the Covid-19 pandemic.

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