

RESEARCH ARTICLE

## FACTORS AFFECTING SYMPTOMS OF DEPRESSION AND ANXIETY AMONG PREGNANT WOMEN DURING COVID-19 PANDEMIC

Aqilah S. Syauki<sup>1\*</sup>, Hartati<sup>2</sup>, Raissa Nurwany<sup>3</sup>, Syarifah Aini<sup>4</sup>

<sup>1</sup>Bachelor Degree, Faculty of Medicine, University Sriwijaya, Indonesia

<sup>2</sup>Departement of Obstetrics and Gynecology, Faculty of Medicine, University Sriwijaya, Indonesia

<sup>3</sup>Departement of Obstetrics and Gynecology, Faculty of Medicine, University Sriwijaya, Indonesia

<sup>4</sup>Departement of Psychiatry, Faculty of Medicine, University Sriwijaya, Indonesia

\*Corresponding Author: aqilahsyauki913@gmail.com

### ABSTRACT

**Background:** Changes in social life have a negative impact on mental health, leading to conditions such as depression and anxiety. Pregnant women are particularly vulnerable to mental health disorders, including depression and anxiety. This study aims to identify factors that influence symptoms of depression and anxiety in pregnant women during the COVID-19 pandemic.

**Methods:** Analytic observational research was used in this study. Primary data were collected from November 1 to November 28, 2021. The data collected came from distributing paper questionnaires and online questionnaires at 7 Independent Midwifery Clinics. The measurement instruments used include, Beck Anxiety Inventory (BAI), Fear of COVID-19 Scale (FCV-19S), and Beck Depression Inventory (BDI).

**Results:** The results showed that out of 308 pregnant women in Palembang, 13.0% experienced mild depression

symptoms, 5.2% experienced moderate depression symptoms, and 1.6% experienced severe depression symptoms. In addition, 41.9% of participants reported anxiety symptoms, which were categorized as mild to moderate anxiety (31.5%), moderate to severe anxiety (9.1%), and severe anxiety (1.3%). There was a significant association found in the bivariate analysis between depressive symptoms and the age maternal women, a significant association of anxiety and depression with abortion history, and a significant association of depressive symptoms and anxiety symptoms with fear related to COVID-19.

**Conclusions:** Research reveals multiple relationships between maternal age and depressive symptoms; between an abortion history and anxiety symptoms; between fear of COVID-19 and the symptoms of depression and anxiety. Counselling in mental health is necessary, especially for pregnant women with high-risk of depression and anxiety

**Keywords:** Anxiety, Depression Pregnant Women, COVID-19.

### INTRODUCTION

Pregnancy is a biological process for women, but it also causes a variety of complex physical and emotional changes.<sup>1</sup> Depression is an affective disorder that falls under the category of emotional or mood disorders.<sup>2</sup> Antenatal depression refers to mood disorders that occur during pregnancy. Based on the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5), antenatal depression is classified as a Major Depressive Disorder (MDD), which is commonly influenced by environmental and genetic factors.<sup>3</sup> The prevalence of antenatal depression varies across countries. Based on a meta-analysis, the prevalence of antenatal depression in developed countries is 7.4% (between 2.2% to 12.6%) in the first trimester, 12.8% (10.7% to 14.8%) in the second trimester, and 12.0% (7.4%

to 16.7%) in the third trimester. In low to middle income countries, the prevalence of antenatal depression is as high as 15.6%.<sup>4,5</sup>

Pregnant women are one of the populations at high risk of depression, which is caused by physiological changes during pregnancy. During pregnancy, antenatal depression is associated with inadequate coping, which does not reduce the activation of CRH neurons in the paraventricular nucleus. Cortisol secretion generally causes hypercortisolemia.<sup>6</sup> The results obtained from 24 studies with a systematic review conducted by Sunaina Seth *et al.*, (2016) showed that cortisol in women with antenatal depression was higher compared to those without depression. High levels of cortisol in women trigger pathophysiological reactions, namely neurotransmitter instability.<sup>7</sup>

Basically, anxiety is the beginning of many mental health problems.<sup>8</sup> Feelings such as fear or worry about something that will have an impact on one's mental state are called anxiety.<sup>9</sup> This feeling of anxiety is a natural response to a threat, not a form of psychopathology. However, when this response is excessive or inappropriate to the threat at hand, anxiety can develop into a maladaptive response.<sup>10</sup> A meta-analytic study by Dennis *et al.* (2017) showed that the distribution of anxiety symptoms in pregnant women across various countries was 18.2% in the first trimester 24.6%, the second trimester and 24.6% in the third trimester.<sup>11</sup>

Anxiety and depression during pregnancy can be associated with an increase in the risk of preterm birth with low birth weight (BBLR) and low APGAR scores at birth.<sup>12</sup> Research found that mental disorder in pregnant women is potentially increasing the possibility of mental disorder in their babies, i.e. attention deficit disorders or anxiety disorders.<sup>13</sup> Research concluded that mental disorder during pregnancy is not only affecting pregnant women, but also their newborn babies.

Research revealed mental disorder particularly the symptoms of depression and anxiety during pregnancy increased during the Covid-19 pandemic.<sup>12,13</sup> According to Leili *et al.* (2020) and Ahorsu *et al.* (2020), these symptoms are related to the fear of Covid-19 pandemic. The results showed that when a person's fear increases, there is an increase in anxiety and depression that will be experienced.<sup>14,15</sup> This increase in psychological threat is triggered by the high global morbidity and mortality rates during the pandemic.<sup>16</sup> The results of the meta-analysis during the Covid-19 pandemic, the spread of antenatal depression in various countries with a percentage of 25.1%, and the spread of anxiety of pregnant women reached a percentage of 18.7%.<sup>17,18</sup>

This study aims to analyze factors affecting symptoms of depression and anxiety in pregnant women during the Covid-19 pandemic and is the first research conducted in Palembang City. The design used was cross-sectional with a questionnaire method distributed through social media and health service facilities in Palembang City. To measure the level of depression and anxiety, the Beck Depression Inventory (BDI) and Beck Anxiety Inventory (BAI) instruments were used.

## METHODS

This study used a cross-sectional study design analytical observational approach, carried out from November 1 to 28, 2021. Research was conducted by (i) delivering questionnaires on social media and (ii) delivering questionnaires to seven (7) private midwifery clinics in Palembang City, South Sumatera, Indonesia. Data was collected by using Consecutive Sampling. Samples were selected from subjects included in the sample classification

until the minimum number of samples achieved.<sup>19</sup> Inclusion criteria in this research involved respondents during pregnancy who signed the consent form and completely filled in the questionnaires. Exclusion criteria was referred to respondents who did not sign the consent form.

Data variables in this research included independent variables, namely depression and anxiety in pregnant women. Independent variables observed in this research are: fear of Covid-19, age, parity, education, job and abortion history.

Data were entered in Microsoft Excel. Descriptive (univariate) statistics were summarized, and bivariate analyses were performed. For categorical variables, Pearson's chi-square test was used; a continuity correction was applied when any expected cell count was <5 and ≤20% of cells were affected, and Fisher's exact test was used when >20% of cells had expected counts <5 (or when assumptions for chi-square were otherwise violated). The Fear of COVID-19 score (numerical) was compared between groups using the Mann-Whitney U test because the distribution was non-normal. All tests were two-tailed with a 95% confidence level and  $\alpha=0.05$ .

## Research Tools:

### 1. Beck Depression Inventory II (BDI-II)

BDI-II is a measuring tool for depression levels.<sup>20</sup> BDI-II questionnaire was used in construct validity test by Sorayah (2014) in "*Uji Validitas Konstruk Beck Depression Inventory-II (BDI-II)*"<sup>21</sup> The score limits produced by the BDI questionnaire are= 0-9; normal, 10-15; mild depression, 16-23; moderate depression, 24-63; severe depression.<sup>22,23</sup>

### 2. Beck Anxiety Inventory (BAI)

BAI is a score scale to evaluate the intensity of physical and cognitive symptoms of anxiety.<sup>24</sup> Trisnowati, Dewi Wulan (2016) used Validity and Reliability method with BAI questionnaire in "*Perbedaan Tingkat Kecemasan Pada Kehamilan Pertama Antara Persalinan Normal Dengan Sectio Caesarea*".<sup>25</sup> The Cut off score of BAI in this research are= 0-9; normal, 10-18; mild to moderate; 19-29; moderate to severe; 30-63; very severe<sup>26,27</sup>

### 3. Fear of COVID-19 Scale (FCV-19S)

FCV-19S is a scale consists of 7 items to evaluate the anxiety level on Covid-19. Kassim *et al.*, (2020) conducted Validity and Reliability test and resulted cronbach alpha 0.819. The scale is valid and reliable.<sup>28</sup>

## ETHICAL APPROVAL

This study was approved by the Ethics Committee of the Faculty of Medicine, Sriwijaya University with an ethical clearance number: 303-2021

## RESULTS

Respondents in this research were 308 pregnant women, i.e. 283 obtained from physical questionnaire and 25 from Google form questionnaire. Based on demographic characteristics shown in Table 1, 97 pregnant women (31.5%) were below 25 years old and 211 pregnant women (68.5%) were above 25 years old. This research revealed the number of parity was 133 nulliparous women (43%) and 175 multiparous women (56.8%). Research showed that pregnant women who had an abortion history were 68 (22.1%) and 240 (77.9%) pregnant women did not have an abortion history.

Table 2 shows the level of depressive symptoms studied using the BD-II instrument, with the following results: 308 pregnant women experienced symptoms of mild depression (13.0%), moderate depression (5.2%), and severe depression (1.6%). Table 4 displays that pregnant women under 25 years old had a higher rate of depression (27.8%) and were at a 2.008 times greater risk of developing depression compared to pregnant women over 25 years old. Nulliparous women had the highest percentage in this study (26.7%); followed by pregnant women with high academic level (26.7%) and working pregnant women (22.6%).

Table 3 shows the level of anxiety measured through the BAI questionnaire, with details: 31.5% of pregnant women experienced mild anxiety; 9.1% experienced moderate anxiety; and 1.3% experienced severe anxiety. Meanwhile, Table 5 shows that the highest level of anxiety was found among pregnant women under 25 years old (47.4%); mothers who had never given birth (45.9%); pregnant women with higher education (48.3%); working mothers (45.3%); and pregnant women who had a history of abortion (45.3%). There was a significant association between anxiety and history of abortion, which had an increased risk of 2.241 greater than pregnant women without a history of abortion.

Table 6 shows that the level of anxiety about Covid-19, as measured by the FCV-19S measuring instrument, is significantly associated with anxiety and depressive symptoms. Pregnant women with depressive symptoms have higher fear of the risk of Covid-19 at 4.95%, compared to those without depressive symptoms (3.22%). Meanwhile, in women who are pregnant and with anxiety symptoms have greater average fear of the risk of Covid at 3.16% compared to those anxiety at symptoms 2.92%.

**Table 1. Demographic Characteristics**

Characteristics	n	%
<b>Age (years)</b>		
<25	97	31.5
25	211	68.5
<b>Parity</b>		
Nullipara	133	43.2
Multipara	175	56.8
<b>Education Level</b>		
Elementary and Middle	248	80.5
Higher Education	60	19.5
<b>Working</b>		
Yes	53	17.2
No	255	82.8
<b>Abortion History</b>		
Yes	68	22.1
No	240	77.9

**Table 2. Depression Level of Pregnant Women based on BDI**

BDI Score	Levels of Depression	Frequency	
		n	%
0-9	Normal	247	80.2
10-15	Mild Depression	40	13.0
16-24	Moderate Depression	16	5.2
25-63	Severe Depression	5	1.6
Total		308	100.0

Table 3. Anxiety Level of Pregnant Women based on BAI

BAI Score	Levels of Anxiety	Frequency	
		n	%
0-9	Normal	179	58.1
10-15	Mild to Moderate Anxiety	97	31.5
16-24	Moderate to Severe Anxiety	28	9.1
25-63	Very Severe Anxiety	4	1.3
Total		308	100

Table 4. Association between Depression Symptoms and Risk Factors

Characteristics	Depressive Symptoms		Normal		Total	OR	95%CI	p value
	N	%	N	%				
<b>Age (years)</b>								
<25	27	27.8	70	72.0	100%	2.008	1.129-	0.025*
25	34	16.1	177	83.9	100%		3.572	
<b>Parity</b>								
Nullipara	31	23.2	102	76.7	100%	1.469	0.837-	0.230*
Multipara	30	16.1	145	82.9	100%		2.577	
<b>Education</b>								
Higher Education	16	26.7	44	73.7	100%	1.640	0.850 -	0.192*
Elementary & Middle	45	18.1	203	81.9	100%		3.164	
<b>Working</b>								
Yes	12	22.6	41	77.4	100%	1.230	0.602 -	0.704*
No	49	19.2	206	80.8	100%		2.515	
<b>Abortion history</b>								
Yes	12	17.6	56	82.4	100%	0.835	0.416 -	0.739*
No	49	20.4	191	79.6	100%		1.679	

Table 5. Association between Anxiety Symptoms and Risk Factors

	Anxiety Symptom		Normal		Total	OR	95%CI	p value
	N	%	N	%				
<b>Age (years)</b>								
<25	46	47,4	51	52,6	100%	1,391	0,857-	0,226
25o	83	39,3	128	60,7	100%		2,259	
<b>Parity</b>								
Nullipara	61	45,9	72	54,1	100%	1,333	0,844-	0,264
Multipara	68	38,9	107	61,1	100%		2,105	
<b>Education</b>								
Higher Level	29	48,3	31	51,7	100%	1,385	0,786-	0,326
Elementary&Middle	100	40,3	148	59,7	100%		2,439	
<b>Working</b>								
Yes	24	45,3	29	54,7	100%	1,182	0,652-	0,690
No	105	41,2	150	58,8	100%		2,145	
<b>Abortion History</b>								
Yes	39	57,4	29	42,6	100%	2,241	1.297-	0,005*
No	90	37,5	150	62,5	100%		1,117	



**Table 6. Association between Depression and Anxiety Symptoms with Fear of COVID-19**

FCV-19S	N	Average	Std. Deviation	Sig
<b>Anxiety</b>				
Normal	179	2.92	2.92	0.000**
Anxiety Symptom	129	3.16	3.16	
<b>Depression</b>				
Normal	247	3.22	3.21	0.001**
Depression Symptom	61	4.95	3.65	

## DISCUSSION

The study revealed that the rate of depression-like symptoms in pregnant women during the Covid-19 outbreak reached 19.8%, including mild, moderate, and severe symptoms. This result is similar to the rate of depressive symptoms during the pandemic in Sri Lanka, which was 19.5%. The results of a meta-analysis study by Si Fan et al., 2020 showed that the average level for depression in pregnant women in 10 countries during the Covid-19 outbreak was 25%. However, this level of depression was higher than the research conducted by Safitri (2021) at the Puskesmas Ilir Timur, Palembang City, which recorded 2.6% for mild depression and 1.3% for moderate depression.

In this research more than half than pregnant women (41.8%) had mild, moderate and severe symptoms of anxiety. The finding was similar with meta-analytical result for anxiety prevalence of pregnant women during pandemic, carried out by Si Fan *et al.*, 2020, i.e. 42%.<sup>17</sup> In Indonesia, research conducted by Juminten Saimin *et al.* found pregnant women with mild anxiety (42.3%); moderate anxiety (43.4%); and severe anxiety (43.4%).<sup>30</sup>

The highest percentage of depression and anxiety were mostly found in people with high level of education, 26.7% for depression and 48.7% for anxiety, compared with percentage in people with a lower level of education (Elementary, Junior High School and Senior High School). This result was supported by research carried out by Deklava *et al.* that stated the highest percentage of group with anxiety was people with high level of education, i.e. 36.5%. The situation possibly occurred in people with high level of education during Covid-19 pandemic because they were more aware to the surrounding environment. Meta-analytical result conducted from a wide population by Salari *et al.* revealed that during the pandemic people with high level of education showed the symptoms of stress, anxiety and depression.<sup>31</sup>

Based on the percentage, the symptom of depression and anxiety were found in working women, greater than in non-working women. The percentage was 22.6% for depression and 45.6% for anxiety. Hence, that evidence did

not show significant relationship. This result was supported by Dawood and Habib that found working pregnant women had higher score of BDI and BAI than non-working pregnant women. Working women prefer to be more responsible both as a mother and a worker. Meanwhile, non-working women have less stress which avoids them to suffer the symptom of depression and anxiety. Culture possibly plays an important role in this context as in developed countries where working women have also responsibilities for themselves and their families. Hence, the pressure for working women is higher than for housewives.<sup>34</sup>

This research found significant relationship between abortion history and anxiety symptom. Women with an abortion history had risk 2.241 times greater to suffer anxiety than women with no abortion history (OR=2.241; 95%CI=1.297-1.117; p=0.005). This finding was supported by Ahmed Waqas that revealed a relationship between abortion history and anxiety symptom (p<0.5).<sup>33</sup> Abortion history is classified as one of risk factors of post traumatic stress disorder in the DSM-V classification. The percentage of abortion in women who suffer mental disorder is higher than in women mental disorder. The cause of abortion, the classification of health care, the length of pregnancy, personal affair, social, economic, religious, and cultural issues are important keys to cope with the psychological disorder after an abortion.<sup>34</sup> However, there are protective variables, such as supports from spouses and relatives, no history of mental disorder, higher level of education, no medical problems, and women with young age.<sup>35</sup>

This research obtained that the fear of Covid-19 was significantly associated with the symptoms of depression and anxiety. The average level of fear of Covid-19 in women with depression and anxiety was higher than in women without symptoms. Some researches supported the relationship between the fear of Covid-19 with the symptoms of depression and anxiety in pregnant women. The first research conducted by Daniel Kwasi Oharsu *et al.* provided the relationship between the fear of COVID-19 in pregnant women and their husbands, using the APIM (Actor-Partner-Interdependence Model). The result showed that the fear of Covid-19 was associated with depression in pregnant women and their husbands.<sup>15</sup> The second research

conducted by L. Salehi *et al.*, was provided in an empirical method (path analysis). Based on research analysis, it was found that the fear of Covid-19 increased negative emotion (depression, anxiety and stress), compared with positive emotion in pregnant women.<sup>14</sup>

Psychological changes during pregnancy are commonly occurred and affected by some factors. That situation makes women consider that pregnancy is not only a happiness, but also a source of worries.<sup>36</sup> A study observed that disinfectant use during pregnancy to fight against Covid-19 was proved to be a source of worries for pregnant women as it was unsafe for the babies.<sup>37</sup> Stressful events during pregnancy, such as: i. losing families, ii. natural disaster, iii. pandemic period that resulted imbalanced interpersonal relationships, iv. dysfunctional family relationships, challenges at work, etc., may increase psychological changes.<sup>38</sup>

## CONCLUSION

This research reveals multiple relationships between maternal age and depressive symptoms, between an abortion history and anxiety symptoms, and between the fear of COVID-19 and the symptoms of depression and anxiety. Further studies should examine variables not included in the present analysis, such as: the husband's health status, which may precipitate depressive and anxiety symptoms in pregnant women, a history of COVID-19 exposure among family members or relatives and protective factors, including marital satisfaction.

## STRENGTHS AND LIMITATIONS

### Strengths:

1. This study has never been conducted before in Palembang City.
2. The study used standardized scales.

### Limitations:

1. In this study the relationship between variables was explained by cross-sectional research, and therefore establishing a causal relationship between key variables may not be possible. Future studies should collect longitudinal data at different time points to further verify the relationship between variables.
2. The number of samples and the possibility of selective bias. During the COVID-19 pandemic, researchers tried to distribute questionnaires online so that samples were more widely distributed, but online questionnaires were not able to meet the minimum number of samples, so researchers tried to distribute them through the Independent Midwifery Clinic (KBM) in Palembang City. This may cause selective bias, because the nature of the clinic selection is carried out by considering the

population that can be reached by researchers and only covers a few sub-districts.

3. There are still many variables that can be included for further research. Such as the husband's mental health variable, which was found to influence the symptoms of depression and anxiety in pregnant women in the study by Daniel Kwasi Oharsu *et al.*, or the variable of having a family history or relatives exposed to COVID-19, such as the study by Urszula *et al.* Protective factor variables can also be sought, such as satisfaction during marriage, as in the study by Effati Daryani *et al.*

However, despite the limitations, the results presented may be a reference point for further research.

## CONFLICT OF INTEREST

None declared

## ACKNOWLEDGMENTS

None declared

## FUNDING SOURCES

None

## REFERENCES

1. Fan F, Zou Y, Ma A, Yue Y, Mao W, Ma X. Hormonal changes and somatopsychologic manifestations in the first trimester of pregnancy and post partum. *Int J Gynecol Obstet* [Internet]. 2009;105(1):46–9. Available from: <http://dx.doi.org/10.1016/j.ijgo.2008.12.001>
2. Sadock BJ, Sadock VA. Kaplan & Sadock Buku Ajar Psikiatri Klinis. 2nd ed. Muttaqin H, Sihombing RNE, editors. Jakarta: EGC; 2010;189–195 p.
3. Dadi AF, Miller ER, Bisetegn TA, Mwanri L. Global Burden of Antenatal Depression and its Association With Adverse Birth Outcomes: An Umbrella Review. *BMC Public Health*. 2020;20(1).
4. Bennett HA, Einarson A, Taddio A, Koren G, Einarson TR. Prevalence of depression during pregnancy: Systematic review. *Obstet Gynecol*. 2004;103(4):698–709.
5. Fisher J, de Mello MC, Patel V, Rahman A, Tran T, Holton S, *et al.* Prevalence and determinants of common perinatal mental disorders in women in low- and lower-middle-income countries: A systematic review. *Bull World Health Organ*. 2012;90(2):139–49.
6. Seth S, Lewis AJ, Galbally M. Perinatal maternal depression and cortisol function in pregnancy and the postpartum period: A systematic literature review. *BMC Pregnancy Childbirth* [Internet]. 2016;16(1). Available from: <http://dx.doi.org/10.1186/s12884-016-0915-y>
7. Tafet GE, Idoyaga-Vargas VP, P.Abulafia D,

- M.Calandria J, S.Roffman S, Chiovetta A, et al. Correlation Between Cortisol Level and Serotonin Uptake in Patients with Chronic Stress and Depression. *Cogn Affect Behav Neurosci*. 2001;1(4):388–93.
8. Vibriyanti D. Kesehatan Mental Masyarakat: Mengelola Kecemasan Di Tengah Pandemi Covid-19. *J Kependud Indones*. 2020;2902:69.
9. Hardiyati, Widiyanti E, Hernawaty T. Studi Literatur: Kecemasan Saat Pandemi Covid-19. *J Kesehat Manarang* [Internet]. 2020;6:27–40. Available from: <http://jurnal.poltekkesmamuju.ac.id/index.php/m%0ASTUDI>
10. Marmor J. Anxiety and Worry as Aspects of Normal Behavior. *Calif Med*. 1962;97(4):212–5.
11. Dennis CL, Falah-Hassani K, Shiri R. Prevalence of antenatal and postnatal anxiety: Systematic review and meta-analysis. *Br J Psychiatry*. 2017;210(5):315–23.
12. Lebel C, MacKinnon A, Bagshawe M, Tomfohr-Madsen L, Giesbrecht G. Elevated depression and anxiety symptoms among pregnant individuals during the COVID-19 pandemic. *J Affect Disord* [Internet]. 2020;277(April 2020):5–13. Available from: <https://doi.org/10.1016/j.jad.2020.07.126>
13. López-Morales H, del Valle MV, Canet-Juric L, Andrés ML, Galli JJ, Poó F, et al. Mental health of pregnant women during the COVID-19 pandemic: A longitudinal study. *Psychiatry Res*. 2021;295.
14. Salehi L, Rahimzadeh M, Molaei E, Zaheri H, Esmaelzadeh-Saeieh S. The relationship among fear and anxiety of COVID-19, pregnancy experience, and mental health disorder in pregnant women: A structural equation model. *Brain Behav*. 2020;10(11):1–8.
15. Ahorsu DK, Imani V, Lin CY, Timpka T, Broström A, Updegraff JA, et al. Associations Between Fear of COVID-19, Mental Health, and Preventive Behaviours Across Pregnant Women and Husbands: An Actor-Partner Interdependence Modelling. *Int J Ment Health Addict*. 2020.
16. Jungmann SM, Witthöft M. Health anxiety, cyberchondria, and coping in the current COVID-19 pandemic: Which factors are related to coronavirus anxiety? *J Anxiety Disord*. 2020;73(January):1–9.
17. Fan S, Guan J, Cao L, Wang M, Zhao H, Chen L, et al. Psychological effects caused by COVID-19 pandemic on pregnant women: A systematic review with meta-analysis. 2020;56(January):1–7.
18. Ghazanfarpour M, Bahrami F, Rashidi Fakari F, Ashrafinia F, Babakhanian M, Dordeh M, et al. Prevalence of anxiety and depression among pregnant women during the COVID-19 pandemic: a meta-analysis. *J Psychosom Obstet Gynecol* [Internet]. 2021 Jun 24;1–12. Available from: <https://doi.org/10.1080/0167482X.2021.1929162>
19. Roflin E, Liberty IA, Pariyana. *Populasi, Sampel, Variabel dalam Penelitian Kedokteran*. 1st ed. Nasrudin M, editor. Pekalongan: Penerbit NEM-Anggota IKAPI; 2021. 1–156 p.
20. Ginting H, Näring G, Van Der Veld WM, Srisayekti W, Becker ES. Validating the Beck Depression Inventory-II in Indonesia's general population and coronary heart disease patients. *Int J Clin Heal Psychol* [Internet]. 2013;13(3):235–42. Available from: [http://dx.doi.org/10.1016/S1697-2600\(13\)70028-0](http://dx.doi.org/10.1016/S1697-2600(13)70028-0)
21. Sorayah. Uji Validitas Konstruk Beck Depression Inventory-II (BDI-II). *J Pengukuran Psikol dan Pendidik Indones*. 2018.
22. Devi L, Diniari N. Perbedaan Prevalensi Depresi Pada Ko-Asisten Fakultas Kedokteran Universitas Udayana Dan Ko-Asisten Fakultas Kedokteran Universitas Warmadewa. *E-Jurnal Med Udayana*. 2016;5(6):1–9.
23. Aditomo A, Retnowati S. Perfeksionisme, Harga Diri, Dan Kecenderungan Depresi Pada Remaja Akhir. *J Psikol*. 2004;(1):1–14.
24. Beck AT, Brown G, Epstein N, Steer RA. An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and. J Consult Clin Psychol*. 1988;56(6):893–7.
25. Trisnowati DW. Perbedaan Tingkat Kecemasan Pada Kehamilan Pertama Antara Persalinan Normal dengan Sectio Caesarea. *Fakultas Psikologi. Universitas Mercubuana*; 2016.
26. Julian LJ. Measures of Anxiety. *Arthritis Care*. 2011;63(011):1–11.
27. Shin DY, Jung KI, Park HYL, Park CK. The effect of anxiety and depression on progression of glaucoma. *Sci Rep* [Internet]. 2021;11(1):1–10. Available from: <https://doi.org/10.1038/s41598-021-81512-0>
28. Kassim MAM, Ayu F, Kamu A, Pang NTP, Ho CM, Algristian H, et al. Indonesian Version of the Fear of COVID-19 Scale: Validity and Reliability. *Borneo Epidemiol J*. 2020;1(2).
29. Safitri RR, Maulida MN, Hikayati. Gambaran Tingkat Kecemasan, Stres dan Depresi Ibu Hamil Pada Masa Pandemi COVID-19. 2021;8(2):71–9.
30. Saimin J, Ridwan S, Purnamasari NI, Bumi K, Andonouhu T. Anxiety Among Pregnant Women During The Covid-19 Pandemic In Southeast Sulawesi : A Cross-Sectional Study. *J Crit Rev*. 2020;7(13):4156–62.