

COMMON MENTAL DISORDERS AMONG PREGNANT WOMEN DURING THE COVID-19 PANDEMIC: A SCOPING REVIEW

To Nguyet Minh^{1,✉}, Dang Hanh Trang², Nguyen Thi Van Anh³
Nguyen Thi Thuy Hanh¹

¹Hanoi Medical University

²University of Wollongong

³University of Debrecen

Many risk factors impact pregnant women's physical and emotional health. In addition, the rise of the COVID-19 epidemic brings with it a slew of unfavourable elements that continue to affect the health conditions of pregnant women, particularly frequent mental problems. This study was conducted to describe mental disorders in pregnant women during the COVID-19 pandemic and associated factors. The majority of 30 included articles were cross-sectional studies and one out of three were conducted in Asia. The review found that stress, anxiety and depression among pregnant women were significantly higher during the pandemic. Due to reduced exercise time, lack of social support, and limited communication due to social distancing. The higher number of women experiencing violence during the COVID-19 era is also a direct cause of the increased prevalence of common mental disorders. To improve this situation, it is necessary to have timely support from society, improve and continue antenatal care services, as well as provide adequate COVID-19-related information and its impact on the fetus.

Keywords: Pregnant women, common mental disorders, depression, stress, anxiety, COVID-19.

I. INTRODUCTION

The World Health Organisation (WHO) describes the COVID-19 pandemic as a pressing global outbreak brought on by coronavirus 2 that causes severe acute respiratory illness (SARS-CoV-2). The capital of Hubei province, Wuhan, in central China, reported the first epidemic in December 2019, and since then, it has spread quickly throughout the world. On January 30th, 2020 WHO declared a Public Health Emergency of International Concern, then a pandemic on March 11th of the same year.¹ In 2022, the new COVID-19 variant was one of several factors contributing to the increase in Covid cases.^{2,3}

As a result, the pandemic has had a

significant impact on socioeconomic status along with income loss, in particular, with a markedly influence on women thanon men.⁴ It has brought great fear of illness or death from the virus, unemployment, and financial pressure. According to WHO, a year after the pandemic, the level of anxiety and depression among the population was more likely to increase.⁵

Before the pandemic, there were a variety of risk factors that can impair a mother's mental health during pregnancy. A range of biological, psychological, social, and cultural factors have been linked to the development of psychological distress in women during the perinatal period. Changes in physical, psychological, and social functioning,⁵ as well as concerns about fetal health and birthing results,⁶ have all been identified as associated factors for mental health. Women

Corresponding author: To Nguyet Minh

Hanoi Medical University

Email: nguyetminh.0219@gmail.com

Received: 12/09/2022

Accepted: 27/09/2022

in the antepartum period suffering from the COVID-19 pandemic could have higher risks of common psychological disorders. To our knowledge, there are currently reviews focused on pregnant women and common mental disorders, but lack findings about associated factors related to the COVID-19 pandemic. Thus, with the aim of clarifying the situation of stress, anxiety, and depression in pregnant women during COVID-19, this study was performed to map relevant studies on the prevalence of common antenatal psychological distress as well as associated factors related to the COVID-19 pandemic in a global context.

II. METHODS

1. Study design

This study applied scoping review method.

2. Search methods for identification of studies

The search strategy was performed on PubMed and Cochrane Library with the restriction for the year of publication from Jan 2020 to 2022. The search strategy was conducted by combining different keywords "COVID-19", "SARS-CoV-2" or "Coronavirus disease", "Pregnant women", "Pregnancy", and "common mental disorders", "Anxiety", "Depression", "Stress" with the Boolean operator ("AND", "OR" and "NOT"). The year publication is limited from 2020 to 2022 was also applied.

3. Selection of studies and management

All publications found from the search strategy were extracted in a two-step after removing all duplicate records. In the first step, the screening titles and abstracts were conducted. The records were eliminated whether they met excluded criteria including

1) having no specific data for antenatal women

2) did not cover the outcome of study interest (prevalence of stress, anxiety and depression)

3) not written in English, and

4) not an original paper. The studies that were selected after the first step continued to be downloaded in full text and moved forward to the second step.

All content of the selected studies was scanned. Peer-reviewed publications in English published between 2020 and 2022 with the outcomes of interest including the stress, anxiety and depression levels among pregnant women during the COVID-19 pandemic were selected. The research methodology included was observation study (cross-sectional, cohort study).

4. Data extraction and analysis

The information that was extracted included

(1) Authors;

(2) Year of publication;

(3) Country origin;

(4) Study methodology;

(5) Assessment scale used;

(6) Study population size;

(7) Study population characteristics (Mean age; mean gestational age);

(8) Key findings that relate to the review question (Prevalence results, conclusion).

5. Ethical consideration

This study worked with secondary data. As such, no ethical approval was required.

III. RESULTS

1. Study characteristics

The selecting publications process was described in Figure 1. The initial search of two databases yielded 462 results. After removing duplicate records, a total of 446 results were preliminarily screened. Among that, 370 articles

were excluded due to non-English language articles, non-original articles, or unrelated outcomes of common mental disorders among expectant mothers during the COVID-19 period. Of the total 76 records reviewed by full text, we excluded 31 articles that did not meet the occurrence of stress, anxiety and

depression; 12 articles focused on other populations (women in general or perinatal women or women in the postpartum period); 03 articles were commentary or review study or unavailable articles. Finally, 30 articles met the inclusion criteria involved in this review.

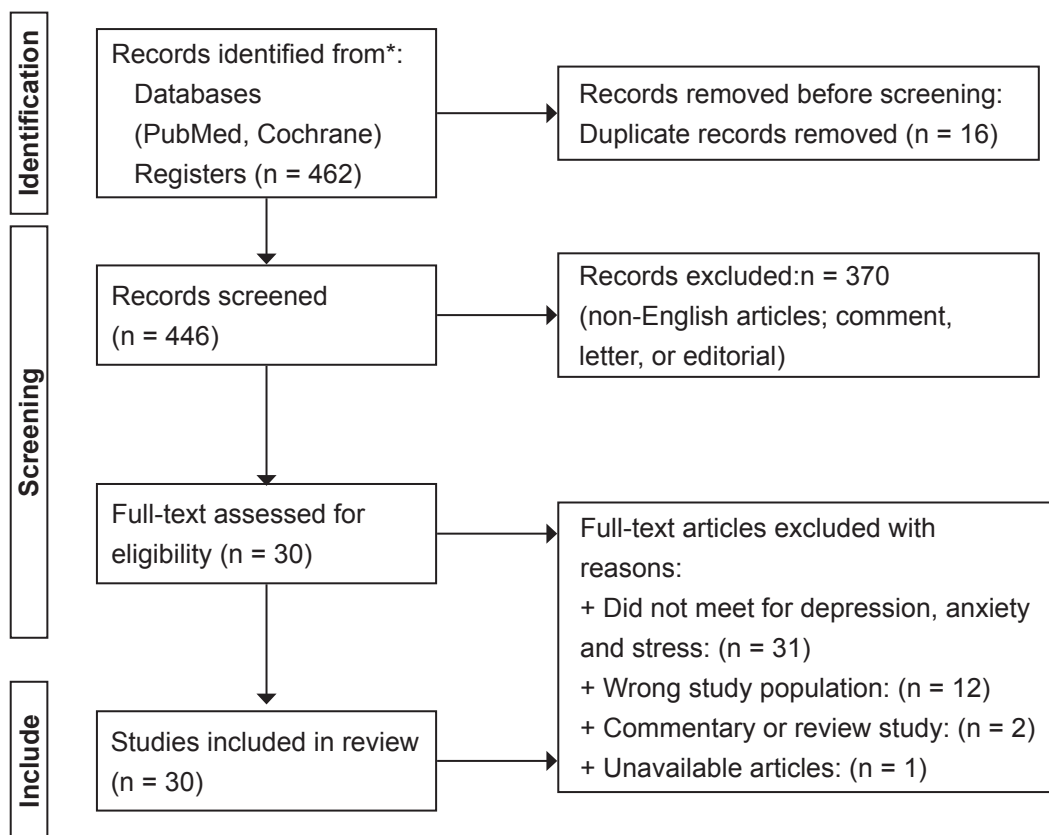


Figure 1. PRISMA Flow diagrams

Table 1. Study characteristics

	Characteristics	N	%
Regions	Asia	10	33.33%
	Europe	9	30.00%
	Africa	4	13.33%
	Middle East	2	6.67%
	America	5	16.67%

	Characteristics	N	%
Study design	Cross-sectional	29	96.67%
	Cohort study	1	3.33%
Sample size	<1000	17	56.67%
	>=1000	13	43.33%
Study population	HIV-positive pregnant women	2	6.67%
	COVID-19 positive pregnant women	1	3.33%
	General Pregnant women	27	90.00%
Common mental disorders (CMD)	Stress	9	30.00%
	Anxiety	25	83.33%
	Depression	24	80.00%

Table 1 shows thirty studies were chosen to review the situation of common mental disorders among antenatal women who suffered in the post-era of the COVID-19 pandemic, published between early 2020 and 2022. The majority of them were cross-sectional studies. Only one record was a cohort study to research the

prevalence of stress, anxiety, and depression. An estimated 28,652 women participated in the studies (which included n = 3644 pregnant women in the control group). There were ten articles from Asia, nine from Europe, four from Africa, four from America, and three others from the Middle East.

Table 2. Prevalence of common mental disorder

No	Author, year; Country	Study design	Sample size	Assessment scale	Prevalence	Main finding
1	Tsakiridis I, et al., 2021; Greece ⁷	Cross-sectional	505	EPDS, STAI	Depression 13.5%. S-anxiety 34.1% T-anxiety 15.8%.	Greece pregnant women have increased anxiety, while the depression levels have been unchanged
2	Ge Y, et al., 2021; China ⁸	Cross-sectional	446	SAS	Anxiety 36.77%	COVID-19 had a significant influence on the anxiety of ethnic minorities during pregnancy

No	Author, year; Country	Study design	Sample size	Assessment scale	Prevalence	Main finding
3	Kahyaoglu Sut H, et al., 2021; Turkey ⁹	Cross-sectional	403	HADS	Anxiety 64.5% Depression 56.3%	Following the expansion of COVID-19, there are significantly more pregnant women who have experienced anxiety and depression.
4	Shangguan F, et al, 2021; China ¹⁰	Cross-sectional	2120	GAD-7	Anxiety 21.7%	According to research, anxiety affects more than 20% of pregnant women.
5	Ade-Ojo IP, et al., 2022; Nigeria ¹¹	Cross-sectional	198 HIV(+) 99 HIV(-) 99	PHQ-9, GAD-7	HIV-positive Depression 49.5% Anxiety 37.4%	Among pregnant HIV-positive women, there was a great incidence of depressive and anxiety disorders.
6	Khoury JE , et al., 2021; Canada ¹²	Cross-sectional	303	CWS, CES-D, ISI	Depression 57.1% Insomnia 19.2%	During the COVID-19 pandemic, pregnant women have had higher levels of anxiety and depression symptoms
7	Kalok A et al, 2021; Malaysia ¹³	Cross-sectional	415	DASS-21	Depression 4.3% Anxiety 14.0% Stress 5.8%	Psychological distress was positively correlated with the number of COVID-19 infection cases.

No	Author, year; Country	Study design	Sample size	Assessment scale	Prevalence	Main finding
8	Nowacka U et al, 2021; Poland ¹⁴	Cross-sectional	439	GAD-7	Anxiety 38%	In comparison to data collected before the COVID-19 pandemic outbreak, the level of anxiety among pregnant women has increased.
9	Koyucu RG et al., 2021; Turkey ¹⁵	Cross-sectional	729	DASS-21	Depression 66.3% Anxiety 70.3% Stress 52.5%	Very high levels of depression, anxiety, and stress disorders during the COVID-19 outbreak.
10	Abate HK et al, 2021; Ethiopia ¹⁶	Cross-sectional	291	PHQ-9	HIV-positive Depression 28.7%	The proportion of depression among pregnant women with HIV is quite high.
11	Effati-Daryani F, et al., 2020; Iran ¹⁷	Cross-sectional	205	DASS-21	Depression 32.7% Anxiety 32.7% Stress 43.9%	During the pandemic, it was anticipated that women would develop more severe stress and depressive symptoms.
12	Morris JR, et al, 2022; USA ¹⁸	Cross-sectional	4303	GAD-7	Anxiety 39.5%	Extreme or very high stress levels and perceived stress were both significant predictors of anxiety in pregnancy.

No	Author, year; Country	Study design	Sample size	Assessment scale	Prevalence	Main finding
13	Lebel C et al., 2020; Canada ¹⁹	Cross- sectional	1987	EPDS, PROMIS Anxiety, PRAS	Depression 37% Anxiety 56.6%	Pregnancies suffered depression, anxiety, and stress significantly related to COVID-19.
14	Nazir T et al., 2022; India ²⁰	Cross- sectional	63	DASS-21	COVID-19 positive Depression 33.32% Anxiety 50.83% Stress 60.3%	High levels of depression, anxiety, and stress in COVID-19 positive pregnant females.
15	Dong H, et al., 2021; China ²¹	Cross- sectional	156	SAS, SDS	Anxiety (SAS \geq 50) 8.3% Depression (SDS \geq 50) 50.6%	Pregnant women's mental health is more vulnerable during COVID-19, particularly to depression symptoms.
16	Keskin DD, et al., 2022; Turkey ²²	Cross- sectional	356	BDS, BAS	Anxiety 29.2% Depression 36.2%	A high prevalence of anxiety, depression, hopelessness, and sleepiness among the pregnant group during the COVID-19 pandemic.

No	Author, year; Country	Study design	Sample size	Assessment scale	Prevalence	Main finding
17	Xu K, et al., 2021; China ²³	Cross- sectional	274	EPDS, SAS, PSS, PSQI	Depression 16.1% Anxiety 13.9% Stress 42.7% Poor sleep quality 37.6%	A large proportion of depression, anxiety, and high stress among pregnant women during COVID-19.
18	Liu J, et al., 2020; USA ²⁴	Cross- sectional	715	EPDS, GAD-7	Depression 36.4% Anxiety 21.9%	A high proportion of pregnant women experienced depression or anxiety.
19	Hamzehgardeshi Z, et al, 2021; Iran ²⁵	Cross- sectional	318	EPDS, PRT, CDA-Q	Anxiety: 20.8% Depression: 42.1%	The study showed a significant predictor of pregnancy-related anxiety among pregnancies during COVID-19.
20	Wang L, et al., 2022; China ²⁶	Cross- sectional	681	GAD-7, PHQ-9	Anxiety 31.72% Depression 36.12%	During the pandemic, the prevalence of anxiety and depression were high but not severe.
21	Cui C, et al., 2021; China ²⁷	Cross- sectional	304	GAD-7	Anxiety 11.18%	Pregnant women in COVID-19 pandemic had a slightly higher rate of prenatal anxiety.

No	Author, year; Country	Study design	Sample size	Assessment scale	Prevalence	Main finding
22	Wu F, et al., 2021; China ²⁸	Cross- sectional	3434	GAD-7, PHQ-9	Depression 6.9% Anxiety 9.8%	The prevalence of depression and anxiety in this study is much lower than that in previous studies due to the marked decline in the number of COVID-19 cases.
23	Nwafor JI, et al., 2021; Nigeria ²⁹	Cross- sectional	456	DASS-21	Depression 45.2%. Anxiety 37.5% Stress 56.8%	During the pandemic, symptoms of depression, anxiety, and stress were relatively popular among pregnant women in Nigeria.
24	Sewnet Amare N, et al., 2022; Ethiopia ³⁰	Cross- sectional	422	DASS-21	Depression 34.1%	Depression among pregnant women during the COVID-19 pandemic was more common.
25	Zhang CJP, et al., 2021; China ³¹	Cross- sectional	1901	EPDS, PCL-S	Depression 34% PTSD 40%	During the early stages of the COVID19 pandemic, there was a high prevalence of probable prenatal depression and suspected posttraumatic stress disorder.

No	Author, year; Country	Study design	Sample size	Assessment scale	Prevalence	Main finding
26	Bakır N, et al., 2021; Turkey ³²	Cross- sectional	327	DASS-21	Pregnant women Depression 19.9% Anxiety 97.9% Stress 52.3%	Pregnant women who bothered themselves about their health during the COVID-19 pandemic demonstrated more positive religious coping than those who were not.
27	Lubián López DM, et al. , 2021; Spain ³³	Cross- sectional	514	EPDS, STAI, CDRIS-10	Depression 35.4% Trait Anxiety 43.4% State Anxiety 44.2%	During the lockdown, pregnant Spanish women had a clinically high prevalence of depression and anxiety.
28	Ho-Fung C, et al., 2022; Sweden ³⁴	Cross- sectional	470	EPDS, GAD-7	Depression 43.2% Generalised anxiety 25.7 PTSD 23.7%	Depression and anxiety among pregnant women were highly prevalent in Sweden during the COVID-19 pandemic.
29	Zilver SJM, et al., 2021; Netherland ³⁵	Cohort	during cohort: 1102 control cohort: 364	HADS, PSS	Stress 27.9% Anxiety 19.5% Depression 13.2%	High anxiety and depression had no difference before the COVID-19.
30	Preis H, et al., 2020; USA ³⁶	Cross- sectional	4451	PREPS	Prenatal preparation stress 27.2% Prenatal risk stress 29.1%.	One of three pregnant women reported stress in the USA during the pandemic.

2. Common mental disorders

Stress levels

Among 30 included studies, nine studies presented the estimated prevalence of stress among expectant women during COVID-19. The majority of them used DASS-21 scale and showed a high stress level in pregnant women (42.7% in China²³; 43.9% in Iran¹⁷; 52.5% and 52.3% in Turkey^{15,32}; 56.8% in Nigeria²⁹; 60.3% in India²⁰). The study used the HADS scale to investigate this rate in the Netherlands and showed an antenatal stress proportion of 27.9%³⁵. Preis et al indicated the women in the antepartum period experienced the feeling of being unprepared for birth or postpartum due to the pandemic was 29.1%, and the concern related to infection was 27.2%.³⁶ On the other hand, a study conducted in Malaysia used the DASS-21 scale showed the stress level among pregnant women was 5.8%.¹³

Anxiety levels

During the pandemic, 25 studies in total estimated anxiety levels in expectant mothers, with distinct results. The majority of these studies revealed that more than a quarter of the participants were experiencing anxiety. Five studies showed the prevalence of anxiety over 50% which included a study in Turkey

that presented a very high rate of anxiety with 97.9%³², four others ranged between 50 and 7 % (50.83% in India²⁰ 56.6% in Canada¹⁹, 64.5%, and 70.3% in Turkey^{9,15}). However, a small number of studies indicated a prevalence of anxiety in less than 15% of pregnant women, one in Malaysia with 14%¹³, four others in China (13.9%; 11.18%; 9.8%; and 8.3%)^{21,23,27,28}. The research also revealed a higher prevalence of anxiety in COVID-19-infected pregnant women than in non-infected pregnant ones.^{14,20}

Depression levels

There were 24 of 30 included studies that described the occurrence of depression symptoms among women in the prenatal period related to the consequences of the COVID-19 pandemic. The prevalence of depressive symptoms was extremely variable. Six studies reported a prevalence below 20%^{7,13,23,28,32,35} while four others reported a proportion above 50%.^{9,12,15,21} Almost half of the included studies presented the rate of depressive symptoms occurring in expectant mothers during the pandemic ranging between 20 and 50 percent. The higher prevalence of depressive disorders among HIV-positive pregnant women with 49.5%.¹¹ However, a study conducted in Ethiopia in a similar population showed a rate of 28.7%¹⁶

3. Associated factors to prenatal common mental disorders

Table 3. Associated factors

No	Author, year; Country	Study design	Sample size	Prevalence	Associated factors
1	Ge Y, et al., 2021; China ⁸	Cross-sectional	446	Anxiety 36.77%	Quarantine and social isolation appeared to drive changes in behaviours and anxiety disorders.

No	Author, year; Country	Study design	Sample size	Prevalence	Associated factors
2	Khoury JE , et al., 2021; Canada ¹²	Cross- sectional	303	Depression 57.1% Insomnia 19.2%	Social isolation, financial trouble, relationship problems and the threat of COVID-19 were all linked to poor conditions of mental health.
3	Koyucu RG et al., 2021; Turkey ¹⁵	Cross- sectional	729	Depression 66.3% Anxiety 70.3% Stress 52.5%	COVID-infected, a history of depression or anxiety, poor social relations were associated with psychological distress.
4	Morris JR, et al, 2022; USA ¹⁸	Cross- sectional	4303	Anxiety 39.5%	COVID-19-related consequences containing job loss, reduced work hours during the pandemic, and inability to pay rent were all strong predictors of anxiety in pregnancy.
5	Lebel C et al., 2020; Canada ¹⁹	Cross- sectional	1987	Depression 37% Anxiety 56.6%	Concerns about threats to their own lives, their baby's health, disrupted prenatal care, and social isolation were all related factors.
6	Liu J, et al., 2020; USA ²⁴	Cross- sectional	715	Depression 36.4% Anxiety 21.9%	Cancelling or interrupting medical appointments, and women who had a financial burden, mobile work, or social distancing during the pandemic led to higher rate of depression.

No	Author, year; Country	Study design	Sample size	Prevalence	Associated factors
7	Wang L, et al., 2022; China ²⁶	Cross- sectional	681	Anxiety 31.72% Depression 36.12%	An inadequate diet and poor sleep quality, lack of family support, and excessive time spent on COVID-19 news were related to anxiety and depression symptoms. Furthermore, a lack of physical activity and prolonged exposure to electronic screens for more than 5 hours per day were connected with depression symptoms.
8	Bakır N, et al., 2021; Turkey ³²	Cross- sectional	327	Pregnant women Depression 19.9% Anxiety 97.9% Stress 52.3%	Extreme daily life changes, social isolation, and infectious diseases might make pregnant women more susceptible to and less able to manage psychological problems like depression, anxiety, and stress.
9	Preis H, et al., 2020; USA ³⁶	Cross- sectional	4451	Pregnant women Prenatal preparation stress 27.2% Prenatal risk stress 29.1%.	Abuse history, chronic illness, income loss due to the pandemic, perceived risk of having had COVID-19, alterations to prenatal appointments, high-risk pregnancy, and being a woman of colour were linked to greater distress levels.
10	Tsakiridis I, et al., 2021; Greece ⁷	Cross- sectional	505	Depression 13.5%. S-anxiety 34.1% T-anxiety 15.8%.	Unplanned pregnancy and smoking increased the risk of antenatal depression during the COVID-19 pandemic.
11	Shangguan F, et al, 2021; China ¹⁰	Cross- sectional	2120	Anxiety 21.7%	Not receiving emotional support and experiencing pelvic pain or vaginal bleeding linked with anxiety.

No	Author, year; Country	Study design	Sample size	Prevalence	Associated factors
12	Nowacka U et al, 2021; Poland ¹⁴	Cross- sectional	439	Anxiety 38%	A history of depression or anxiety prior to pregnancy, or poor social relations is associated with a diagnosis of anxiety.
13	Abate HK et al, 2021; Ethiopia ¹⁶	Cross- sectional	291	HIV-positive Depression 28.7%	Older age, urban residence, known HIV serostatus during pregnancy were related factors.
14	Nazir T et al., 2022; India ²⁰	Cross- sectional	63	COVID-19 positive Depression 33.32% Anxiety 50.83% Stress 60.3%	Females who were educated and working were found to have higher rates of mental problems. A negative obstetric history was discovered to be an independent factor in this group's increased emotional difficulties.
15	Cui C, et al., 2021; China ²⁷	Cross- sectional	304	Anxiety 11.18%	The associated factors with high risk of anxiety were suffering from vomiting, COVID-19 infection.
16	Wu F, et al., 2021; China ²⁸	Cross- sectional	3434	Depression 6.9% Anxiety 9.8%	Women who have an abnormal marital status, do not receive prenatal counselling, have family dysfunction in the first trimester, have a decline in household income and disputes, use alcohol or smoke, are more likely to have anxiety or depression symptoms.
17	Sewnet Amare N, et al., 2022; Ethiopia ³⁰	Cross- sectional	422	Depression 34.1%	Women who divorced or one's husband had low educational status are statistically significant variables associated with depression.

No	Author, year; Country	Study design	Sample size	Prevalence	Associated factors
18	Lubián López DM, et al., 2021; Spain ³³	Cross- sectional	514	Depression 35.4% Trait Anxiety 43.4% State Anxiety 44.2%	Women having lower household incomes were more likely to develop depressive symptoms and kept moderate to severe anxiety levels.
19	Ho-Fung C, et al., 2022; Sweden ³⁴	Cross- sectional	470	Depression 43.2% Generalized anxiety 25.7 PTSD 23.7%	Having a sick family member, being unemployed, and going through a significantly stressful life event were all associated with an increase in CMD rates.

There were 19 studies that indicated factors associated with the risk of stress, anxiety and depression in pregnant women during the COVID-19 epidemic.

The COVID-19 related factors were prominent part among those included studies. A Turkey study found that pregnant women positive with COVID-19 were considered having higher risk of psychological distress.¹⁵ Besides that, the factors caused by the pandemic were mentioned in many studies, including reduced family income (n=6),^{12,18,24,28,33,36} social isolation (n=5),^{8,12,19,24,32} interrupted antenatal care (n=4),^{19,24,28,36} relationship difficulty,^{12,14,15} and lack of social support,^{26,28} inappropriate physical exercise, exposure to electronic screens over 5 hours per day, and excessive time spent on COVID-19 news were associated with increasing anxiety and depression levels.²⁶ Moreover, pregnant women who suffered violent abuse are more likely to have psychological distress.³⁶

The other risk factors of common

mental disorders were abnormal obstetric history,^{10,20,27,28,36} unplanned pregnancy,⁷ smoking or alcohol consumption.^{7,28} Women who have history of psychiatric disorders,^{14,15,34} chronic illnesses,^{32,36} or who had HIV positive^{15,27,36} are more likely to experience stress, depression and anxiety than who have not. Statistics-significant factors linked to depression also include divorced women and a partner with a poor level of education.³⁰ women with higher education and employed were found to have a higher rate of depression.²⁰ Maintaining proper physical activity and being an active worker were variables that could reduce depression levels.^{9,19}

IV. DISCUSSION

This review's findings indicate a significantly higher prevalence of stress, anxiety, and depression during pregnancy in the pandemic. Anxiety and depression were the most common psychological symptoms among pregnant women. Until now, a small number of longitudinal studies have assessed the psychological

concerns among pregnant women who have experienced the Coronavirus pandemic, as well as comparing groups of expecting moms before and throughout the COVID-19 era. There have been few meta-analyses reported to determine the pandemic's influence on maternal health, particularly mental health. A study of Adrianto et al indicated the prevalence of depression among pregnant women and postpartum women during COVID-19 was 32.6%.³⁷ The systematic review of Dereje et al also showed the pooled prevalence of stress, anxiety, depression was 56%, 33%, and 27% respectively.³⁸ Compared to the previous studies before COVID-19, for instance, Yin's study³⁹ mentioned the rate of antenatal depression and anxiety was 20.7%, and 15.0%, respectively and the study of Fisher et al⁴⁰ indicated the prevalence of depression and anxiety was 15.4%. In conclusion, the frequency of anxiety, stress, and depression in pregnant women during the pandemic has significantly increased. Even though Kalok's study showed a low prevalence of antenatal stress, anxiety, and depression, they confirmed these common mental disorders were positively related to the COVID-19 infected cases.¹³

This review has found that pregnant women might have a higher risk of anxiety and stress if staying at home too long due to social isolation or infecting COVID-19. Pregnant women experiencing this pandemic had expressed worries, as have other COVID-19-related matters, such as the danger of infection with the virus and the health of future children. The working status during pregnancy was reported as relating to prenatal depression. Pregnant women who lost their job had financial burdens or be forced to work at home were indicated to higher prevalence of stress and anxiety. Moreover, according to statistical reports, the rate of women losing their jobs has always

surpassed that of men.⁴¹ As a result, women experienced more financial pressure as well as being alone at home, which obviously includes pregnant women. An increase in anxiety and depression in prenatal women has also been linked to excessive time spent on COVID-19 news, including bias in information from the media and social networks.^{26,42} Along with it, the increase in intimate partner violence also was reported in many studies. A significant increase in domestic violence has been recorded in many countries, with a surge in domestic violence cases according to police data and a spike in calls to the hotlines of violence prevention organizations from around the world since January 2020.⁴³⁻⁴⁵ In conclusion, more women have been victims of violence throughout the epidemic, and the number of women having mental health problems has increased.

Aside from factors directly related to the epidemic, there are numerous causes associated with an increased risk of stress, depression, and anxiety among women during the antepartum period. Expecting moms were frequently anxious as a result of inadequate physical activity, and a poor diet. Pregnant women with a history of depression, or living HIV positive were more likely to feel stress, anxiety, and increased risk of depression. It is worth noting that pregnant women with low levels of education and low socioeconomic status were more likely to have psychological problems than those with high levels of education and low socioeconomic status⁴⁶

By using broad search terms and inclusion criteria, we were able to review the literature on the early impact of the pandemic on common mental disorders among pregnant women, with parallel evidence of the prevalence of stress, anxiety, and depression situations during the COVID-19 pandemic. Following up

on the PRISMA extension for scoping review guidelines, a scoping review was carried out. The main limitation of this study is the lack of databases consulted. Furthermore, English was the only language selected for this study. This restricts articles from countries where English is not the primary language. Other than that, using a systematic review or meta-analysis to analyse the data will certainly evaluate the problem more accurately than scoping review. Finally, research was selected according to the subjectivity of the researcher, so there will be certain biases that prevent a directional summary of the studies.

V. CONCLUSION

The findings of this study indicated that the COVID-19 pandemic has raised levels of anxiety, stress, and depression among pregnant women. Among that, COVID-19 related factors including social isolation, unemployment, antenatal care interruption, and excessive time spent on COVID-19 news also acted as the major elements causing psychological distress of women during the prenatal period. Mental health screening for pregnant women should be included in antenatal care as well as accurate information and guidance on the "new normal" should be provided to pregnant women and their families.

REFERENCE

1. Cucinotta D., Vanelli M. WHO Declares COVID-19 a Pandemic. *Acta Biomed.* Mar 19 2020; 91(1): 157-160. doi:10.23750/abm.v91i1.9397.
2. Karim S. S. A., Karim Q. A. Omicron SARS-CoV-2 variant: a new chapter in the COVID-19 pandemic. *Lancet (London, England).* Dec 11 2021; 398(10317): 2126-2128. doi:10.1016/s0140-6736(21)02758-6.
3. Sapkal G. N., Yadav P. D., *et al.* Inactivated COVID-19 vaccine BBV152/COVAXIN effectively neutralizes recently emerged B.1.1.7 variant of SARS-CoV-2. *J Travel Med.* Jun 1 2021; 28(4) doi:10.1093/jtm/taab051.
4. Kotlar B., Gerson E., *et al.* The impact of the COVID-19 pandemic on maternal and perinatal health: a scoping review. *Reprod Health.* Jan 18 2021; 18(1): 10. doi:10.1186/s12978-021-01070-6.
5. Bjelica A., Cetkovic N., *et al.* The phenomenon of pregnancy - a psychological view. *Ginekol Pol.* 2018; 89(2): 102-106. doi:10.5603/GP.a2018.0017.
6. Salehi L., Rahimzadeh M., *et al.* The relationship among fear and anxiety of COVID-19, pregnancy experience, and mental health disorder in pregnant women: A structural equation model. *Brain Behav.* Nov 2020; 10(11): e01835. doi:10.1002/brb3.1835.
7. I Tsakiridis, T Dagklis, *et al.* Antenatal depression and anxiety during the COVID-19 pandemic: a cross-sectional study in pregnant women from routine health care contact in Greece. *Journal of perinatal medicine.* 2021-7-27 2021; 49(6): 656-663. doi:doi:
8. Y Ge, C Shi, *et al.* Anxiety and Adaptation of Behavior in Pregnant Zhuang Women During the COVID-19 Pandemic: A Mixed-Mode Survey. *Risk management and healthcare policy.* 2021 2021; 14: 1563-1573. doi:doi:
9. H Kahyaoglu Sut, B Kucukkaya. Anxiety, depression, and related factors in pregnant women during the COVID-19 pandemic in Turkey: A web-based cross-sectional study. *Perspectives in psychiatric care.* 2021-4 2021; 57(2): 860-868. doi:doi:
10. F Shangguan, R Wang, *et al.* Association of Stress-Related Factors With Anxiety Among Chinese Pregnant Participants in an Online

- Crisis Intervention During COVID-19 Epidemic. *Frontiers in psychology*. 2021 2021; 12:633765. doi:doi:
11. IP Ade-Ojo, MU Dada, *et al.* Comparison of Anxiety and Depression Among HIV-Positive and HIV-Negative Pregnant Women During COVID-19 Pandemic in Ekiti State, Southwest Nigeria. *International journal of general medicine*. 2022 2022; 15:4123-4130. doi:doi:
12. JE Khoury, L Atkinson, *et al.* COVID-19 and mental health during pregnancy: The importance of cognitive appraisal and social support. *Journal of affective disorders*. 2021-3-1 2021; 282:1161-1169. doi:doi:
13. A Kalok, SA Syed Anwar Aly, *et al.* COVID-19 Pandemic and Maternal Psychological Wellbeing During the Malaysian Movement Control Order: A Cross-Sectional Study. *Frontiers in psychiatry*. 2021 2021; 12:745034. doi:doi:
14. U Nowacka, S Kozłowski, *et al.* COVID-19 Pandemic-Related Anxiety in Pregnant Women. *International journal of environmental research and public health*. 2021-7-6 2021; 18(14)doi:doi:
15. RG Koyucu, PP Karaca. The Covid 19 outbreak: Maternal Mental Health and Associated Factors. *Midwifery*. 2021-8 2021; 99:103013. doi:doi:
16. HK Abate, CK Mekonnen, *et al.* Depression Among HIV-Positive Pregnant Women at Northwest Amhara Referral Hospitals During COVID-19 Pandemic. *Risk management and healthcare policy*. 2021 2021; 14:4897-4905. doi:doi:
17. F Effati-Daryani, S Zarei, *et al.* Depression, stress, anxiety and their predictors in Iranian pregnant women during the outbreak of COVID-19. *BMC psychology*. 2020-9-22 2020; 8(1): 99. doi:doi:
18. JR Morris, E Jaswa, *et al.* Early pregnancy anxiety during the COVID-19 pandemic: preliminary findings from the UCSF ASPIRE study. *BMC pregnancy and childbirth*. 2022-3-31 2022; 22(1): 272. doi:doi:
19. C Lebel, A MacKinnon, *et al.* Elevated depression and anxiety symptoms among pregnant individuals during the COVID-19 pandemic. *Journal of affective disorders*. 2020-12-1 2020; 277:5-13. doi:doi:
20. T Nazir, R Amin, *et al.* Emotional difficulties in pregnant females who tested positive for COVID-19: A cross-sectional study from South Kashmir, India. *Journal of education and health promotion*. 2022 2022; 11:13. doi:doi:
21. H Dong, R Hu, *et al.* Investigation on the mental health status of pregnant women in China during the Pandemic of COVID-19. *Archives of gynecology and obstetrics*. 2021-2 2021; 303(2): 463-469. doi:doi:
22. DD Keskin, S Keskin, *et al.* Mental disorders among pregnant women during the COVID-19 pandemic. A cross-sectional study. *Sao Paulo medical journal = Revista paulista de medicina*. 2022-1 2022; 140(1): 87-93. doi:doi:
23. K Xu, Y Zhang, *et al.* Mental health among pregnant women under public health interventions during COVID-19 outbreak in Wuhan, China. *Psychiatry research*. 2021-7 2021; 301:113977. doi:doi:
24. J Liu, P Hung, *et al.* Mental health among pregnant women with COVID-19-related stressors and worries in the United States. *Birth (Berkeley, Calif)*. 2021-12 2021; 48(4):470-479. doi:doi:
25. Z Hamzehgardeshi, S Omidvar, *et al.* Pregnancy-related anxiety and its associated factors during COVID-19 pandemic in Iranian pregnant women: a web-based cross-sectional

study. *BMC pregnancy and childbirth*. 2021-3-15 2021;21(1):208. doi:doi:

26. L Wang, N Yang, *et al.* Pregnant Women's Anxiety and Depression Symptoms and Influence Factors in the COVID-19 Pandemic in Changzhou, China. *Frontiers in psychology*. 2022 2022; 13:855545. doi:doi:

27. C Cui, L Zhai, *et al.* Prenatal anxiety and the associated factors among Chinese pregnant women during the COVID-19 pandemic-a smartphone questionnaire survey study. *BMC psychiatry*. 2021-12-10 2021; 21(1):619. doi:doi:

28. F Wu, W Lin, *et al.* Prevalence and contributory factors of anxiety and depression among pregnant women in the post-pandemic era of COVID-19 in Shenzhen, China. *Journal of affective disorders*. 2021-8-1 2021; 291:243-251. doi:doi:

29. JI Nwafor, IN Okedo-Alex, *et al.* Prevalence and predictors of depression, anxiety, and stress symptoms among pregnant women during COVID-19-related lockdown in Abakaliki, Nigeria. *Malawi medical journal : the journal of Medical Association of Malawi*. 2021-3 2021; 33(1): 54-58. doi:doi:

30. N Sewnet Amare, D Nibret Gessesse, *et al.* Prevalence of antenatal depression and associated factors among pregnant women during COVID-19 pandemic in North Shewa zone, Amhara region, Ethiopia. *International journal of Africa nursing sciences*. 2022 2022; 17:100459. doi:doi:

31. CJPZhang, HWu, *et al.* Psychobehavioral Responses, Post-Traumatic Stress and Depression in Pregnancy During the Early Phase of COVID-19 Outbreak. *Psychiatric research and clinical practice*. 2021 2021; 3(1):46-54. doi:doi:

32. N Bakır, P Irmak Vural, *et al.* Relationship

of Depression, Anxiety and Stress Levels with Religious Coping Strategies Among Turkish Pregnant Women During the COVID-19 Pandemic. *Journal of religion and health*. 2021-10 2021; 60(5): 3379-3393. doi:doi:

33. DM Lubián López, CA Butrón Hinojo, *et al.* Resilience and psychological distress in pregnant women during quarantine due to the COVID-19 outbreak in Spain: a multicentre cross-sectional online survey. *Journal of psychosomatic obstetrics and gynaecology*. 2021-6 2021; 42(2): 115-122. doi:doi:

34. C Ho-Fung, E Andersson, *et al.* Self-reported mental health status of pregnant women in Sweden during the COVID-19 pandemic: a cross-sectional survey. *BMC pregnancy and childbirth*. 2022-3-28 2022; 22(1):260. doi:doi:

35. SJM Zilver, BFP Broekman, *et al.* Stress, anxiety and depression in 1466 pregnant women during and before the COVID-19 pandemic: a Dutch cohort study. vol 42. 2021: 108-114.

36. H Preis, B Mahaffey, *et al.* Vulnerability and resilience to pandemic-related stress among U.S. women pregnant at the start of the COVID-19 pandemic. *Social science & medicine (1982)*. 2020-12 2020; 266:113348. doi:doi:

37. Adrianto Nicholas, Caesarlia Josephine, *et al.* Depression in pregnant and postpartum women during COVID-19 pandemic: systematic review and meta-analysis. *Obstet Gynecol Sci*. 7 2022;65(4): 287-302. doi:10.5468/ogs.21265

38. Demissie Dereje Bayissa, Bitew Zebenay Workneh. Mental health effect of COVID-19 pandemic among women who are pregnant and/or lactating: A systematic review and meta-analysis. *SAGE Open Medicine*. 2021; 9: 20503121211026195. doi:10.1177/20503121211026195

39. Yin Xiaoxv, Sun Na, *et al.* Prevalence and associated factors of antenatal depression: Systematic reviews and meta-analyses. *Clinical Psychology Review*. 2021/02/01/2021; 83: 101932. doi:<https://doi.org/10.1016/j.cpr.2020.101932>.
40. Fisher J., Cabral de Mello M., *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*. Feb 1 2012; 90(2): 139g-149g. doi:[10.2471/blt.11.091850](https://doi.org/10.2471/blt.11.091850).
41. Branch. Staff of the National Estimates. *Current Employment Statistics Highlights*. 2021. <https://www.bls.gov/web/empsit/ceshighlights.pdf>.
42. Saccone G., Florio A., *et al.* Psychological impact of coronavirus disease 2019 in pregnant women. *Am J Obstet Gynecol*. Aug 2020; 223(2): 293-295. doi:[10.1016/j.ajog.2020.05.003](https://doi.org/10.1016/j.ajog.2020.05.003).
43. Sediri S., Zgueb Y., *et al.* Women's mental health: acute impact of COVID-19 pandemic on domestic violence. *Arch Womens Ment Health*. Dec 2020; 23(6): 749-756. doi:[10.1007/s00737-020-01082-4](https://doi.org/10.1007/s00737-020-01082-4).
44. Yari A., Zahednezhad H., *et al.* Frequency and determinants of domestic violence against Iranian women during the COVID-19 pandemic: a national cross-sectional survey. *BMC public health*. Sep 23 2021; 21(1): 1727. doi:[10.1186/s12889-021-11791-9](https://doi.org/10.1186/s12889-021-11791-9).
45. Abu-Elenin M. M., Elshora A. A., *et al.* Domestic violence against married women during the COVID-19 pandemic in Egypt. *BMC women's health*. Mar 27 2022; 22(1): 94. doi:[10.1186/s12905-022-01674-5](https://doi.org/10.1186/s12905-022-01674-5).
46. FJG Al-Hashimi, S Kareem Alalaf, *et al.* Screening for depression during pregnancy using the Kurdish version of the Edinburgh Postnatal Depression Scale in Erbil city. *Health care for women international*. 2020-3 2020; 41(3): 240-254. doi:[doi:10.1016/j.hcwi.2020.03.003](https://doi.org/10.1016/j.hcwi.2020.03.003).