

Original Article



Perceived Stress, Anxiety, and Depression Levels and related Experiences among Pregnant Women during the COVID-19 Pandemic: A Mixed-Method Study

Rabiye Akın Işık^{1*}, Yunus Kaya², Ahmet Erdem³¹Department of Obstetric and Gynecology, Faculty of Nursing, Hacettepe University, 06100 Ankara, Turkey²Department of Nursing, Faculty of Health Sciences, Aksaray University, 68100 Aksaray, Turkey³Department of Gynecology and Obstetric, Faculty of Medicine, Gazi University, 06560 Ankara Turkey

Article Info

Article History:

Received: January 1, 2025

Revised: March 13, 2025

Accepted: October 5, 2025

ePublished: May 22, 2026

Keywords:

COVID-19 pandemic, Stress, Pregnancy, Anxiety, Depression

*Corresponding Author:

Rabiye Akın,
Email: isk.akinrabia35@gmail.com

Abstract

Introduction: Pregnancy is a vulnerable period in a woman's life and may be adversely affected by psychological factors influencing both the mother and fetus. The COVID-19 pandemic increased stress, anxiety, and depression among pregnant women. This study aimed to investigate pregnant women's perceived levels of stress, anxiety, and depression, and their related experiences, during the COVID-19 pandemic using a mixed-methods design.**Methods:** This study was conducted using an explanatory sequential mixed-methods design consisting of quantitative (n=258) and qualitative (n=17) phases, between January 2021 and January 2022. Data were collected using an introductory characteristics questionnaire, the Beck Depression Inventory, the Beck Anxiety Inventory, and the Perceived Stress Scale. In the qualitative phase, in-depth interviews were conducted with participants to explain the quantitative findings. Quantitative data were analyzed using SPSS 23.0, applying descriptive statistics and Pearson's correlation test. Qualitative data were examined through six-step thematic analysis by Braun and Clarke (2006).**Results:** The mean depression score was 10.60 ± 6.35 , the mean anxiety score was 11.37 ± 8.37 , and the mean perceived stress score was 15.92 ± 5.67 . Depression scores were positively correlated with anxiety ($r=0.67$, $P<0.01$) and perceived stress ($r=0.60$, $P<0.01$). Anxiety and perceived stress scores were also positively correlated ($r=0.64$, $P<0.01$). Qualitative findings revealed four themes: mental effects of the COVID-19 pandemic, attitudes toward healthcare services, experiences during pregnancy, and expectations during the pandemic.**Conclusion:** Nurses play an important role in preventing stress, anxiety, and depression among pregnant women. Evidence-based support and education should be provided to pregnant women and their families during public health crises.

Introduction

The coronavirus (COVID-19) pandemic took a toll on every aspect of life, including access to healthcare. Many countries applied preventive measures and allocated non-emergency resources to COVID-19 care.¹ Due to the pandemic, pregnant women had only limited access to prenatal care, increasing the prevalence of complications and C-section rates.² However, regular prenatal care is essential for a healthy pregnancy.¹

During the prenatal period, some pregnant women experience high maternal stress levels and intense anxiety about both fetal health and childbirth.^{3,4} Many risk factors are associated with anxiety and depression during pregnancy. One of these is catastrophic events or natural disasters. The COVID-19 pandemic was also a natural disaster. Although there is limited data regarding the complications caused by the coronavirus,^{2,5} pregnant women are known to be more susceptible to infection.⁵ It

was recommended that pregnant women take additional measures because they are at high risk for severe COVID-19 disease, making them more vulnerable to stress, anxiety, and depression.² Measures such as quarantine, travel restrictions, etc. also meant pregnant women could not access sources of social support and thus experienced high levels of stress, anxiety, and depression.⁶

A study evaluating the mental status of 5210 pregnant and postpartum women in Europe during the COVID-19 pandemic found that 16.1% of pregnant women had depression and 17.3% had anxiety disorders.⁷ In another study conducted in Norway, the rate of depression in pregnant women was found to be 14.5%, while the rate of anxiety was found to be 21.5%.⁸ In addition, the conducted studies demonstrated that social isolation, lack of peer and family support, fear of being infected with the COVID-19, economic strain, loss of control and inability to receive qualified health care services during the COVID-19

Research Highlights

What is the current knowledge?

During the COVID-19 pandemic, some pregnant women experienced elevated maternal stress levels and increased anxiety related to fetal health, childbirth, and the risk of infection.

During this period, multiple risk factors associated with anxiety and depression in pregnancy were intensified, particularly due to social isolation, reduced access to healthcare services, and uncertainty related to the pandemic.

What is new here?

The findings of this study indicate that pregnant women experienced increased levels of stress and anxiety during the COVID-19 pandemic, largely due to uncertainty related to infection risk, pregnancy outcomes, and healthcare access.

Based on these findings, it is recommended that future research and healthcare practices focus on understanding and addressing the psychosocial needs of pregnant women during global health crises, including the experiences of both healthcare providers and families.

pandemic may cause depression, anxiety and stress symptoms in pregnant women.⁹⁻¹² For both mothers and babies, anxiety and stress during pregnancy can lead to complications such as preeclampsia, depression, nausea and vomiting, premature birth, and low birth weight.¹³ Women with prenatal anxiety and depression may be more likely to experience postpartum depression and suffer from prenatal infections and diseases. Such conditions can negatively affect fetal development by causing changes in physical activity, eating habits and sleep patterns. Babies of mothers with high stress levels during pregnancy may be at higher risk changes in brain structure and functions, cognitive and behavioral problems, and mental health problems later in life.^{14,15}

Mental health during pregnancy is critical for maternal and infant health. Healthcare professionals felt the need to plan and implement interventions for pregnant women during the pandemic for several reasons. First, misinformation about COVID-19 circulated on social media platforms.¹⁶ Second, millions of people lived with anxiety during the pandemic.^{17,18} Third, preventive measures (quarantine, social isolation, lockdowns, curfews, etc.) affected pregnant women's mental health.¹⁹ This study thus focused on stress, anxiety, and depression experienced by pregnant women during the COVID-19 pandemic. When the studies conducted during the COVID-19 pandemic process were evaluated, the mental conditions of pregnant women were evaluated with quantitative studies or only qualitative studies addressed their experiences.^{7-9, 11,12} However, with this study, a mixed-methods design was preferred to obtain a more comprehensive understanding of pregnant women's psychological experiences during

the COVID-19 pandemic by integrating quantitative findings with in-depth qualitative insights. This study aims to investigate pregnant women's perceived levels of stress, anxiety, and depression, along with their related experiences, during the COVID-19 pandemic using a mixed-methods design.

Materials and Methods

This study adopted an explanatory sequential design of mixed methods research conducted between January 2021 and January 2022. Researchers who adopt this design collect and analyze quantitative and then qualitative data.^{20,21} The explanatory sequential design enabled the diversification and comprehensive interpretation of the data.²⁰ First, we quantitatively determined the stress, anxiety, and depression levels perceived by pregnant women during the COVID-19 pandemic. The study population consisted of all pregnant women admitted to the obstetrics and gynecology outpatient clinic of a university hospital in Ankara. The inclusion criteria for the quantitative part were being in any trimester of pregnancy, having no mental disorders, and volunteering to participate in the study. A total of 310 women who met these criteria were informed about the study, and the quantitative sample consisted of 258 pregnant women. Fifty-two women declined participation because of fear of COVID-19 infection or lack of time.

The quantitative data were collected using an introductory characteristics questionnaire, the Beck Depression Inventory, the Beck Anxiety Inventory, and the Perceived Stress Scale. Second, semi-structured in-depth individual interviews were conducted to expand the quantitative findings. The aim was to determine the causes of the mental strain experienced by pregnant women, their coping methods, and possible interventions. In the qualitative phase, a phenomenological research design was adopted to explore pregnant women's experiences during the COVID-19 pandemic. A phenomenological approach is used to explore how particular groups perceive and make sense of a phenomenon by focusing on shared experiences and common meanings. This study specifically focused on the phenomenon of "being a pregnant woman during the COVID-19 pandemic." Using a phenomenological design allowed a detailed examination of pregnant women's experiences and identification of the most common themes. The inclusion criteria for the qualitative part were participation in the quantitative stage, a Beck Anxiety Inventory score of ≥ 16 , and willingness to participate. Purposive sampling was used. Although 89 women volunteered, only 21 met the inclusion criteria, and 17 agreed to participate. In qualitative research, data collection continues until data saturation is achieved.

The qualitative data were collected through semi-structured in-depth interviews.

Introductory Characteristics Questionnaire

The introductory characteristics questionnaire was based on a literature review.^{2,5,22,23} The questionnaire consisted of 19 items on sociodemographic and pregnancy-related

characteristics.

Beck Depression Inventory (BDI)

The BDI is a self-report rating inventory developed by Beck et al²⁴ to measure the level and severity of depressive symptoms. It was adapted to Turkish by Hisli²⁵ and consists of 21 items, each of which comprises four statements that describe a range of feelings or experiences. These statements are rated on a three-point Likert scale. The total score ranges from 0 to 63. Higher scores indicate higher levels of depression (0-10 = normal, 11-16 = mild mood disturbance, 17-20 = borderline clinical depression, 21-30 = moderate depression, 31-40 = severe depression, and > 40 = extreme depression). The inventory has a Cronbach's alpha of 0.86²⁵. In this study, Cronbach's alpha was calculated using statistical software to assess internal consistency reliability and was found to be 0.83.

Beck Anxiety Inventory (BAI)

The BAI was developed by Beck et al²⁶ and adapted to Turkish by Ulusoy et al²³. It is a 21-item measure used to assess the severity of anxiety. The items are rated on a four-point Likert scale ("0 = not at all," and "3 = severely"). The total score ranges from 0 to 63, with higher scores indicating more severe anxiety ("0-7 = minimal anxiety," "8-15 = mild anxiety," "16-25 = moderate anxiety," and 26-63 = severe anxiety). The inventory has a Cronbach's alpha of 0.92²⁶. The Turkish version has a Cronbach's alpha of 0.93²⁷. In this study, Cronbach's alpha was calculated using statistical software to assess internal consistency reliability and was found to be 0.90.

Perceived Stress Scale (PSS)

The PSS is a self-reported measure of perceived stress in the past month. It was developed by Cohen et al²⁸ and adapted to Turkish by Eskin et al²⁹. It consists of ten items rated on a five-point Likert scale ("0 = Never" to "4 = Very Often"). The total score ranges from 0 to 40, with higher scores indicating higher stress levels. The Turkish version has a Cronbach's alpha of 0.82²⁹. In this study, Cronbach's alpha was calculated using statistical software to assess internal consistency reliability and was found to be 0.78.

Semi-Structured In-depth Individual Interview Questionnaire

This form consists of 8 questions to evaluate the effects of the COVID-19 pandemic on the pregnancy process, the situations that caused their anxiety to increase and decrease, coping methods, their expectations from health personnel and their experiences in the process. The semi-structured interview form includes the following questions. How has the coronavirus affected your daily life, and what changes has it brought to your life?, How did becoming pregnant and being pregnant during the COVID-19 pandemic make you feel?, What factors increased your anxiety and stress during this time?, What challenges did you face related to being pregnant during the COVID-19 pandemic?, How did you cope with the challenges you faced during this period?,

What positive and negative effects did being pregnant have on you and your family life during this period?, How did this period affect your ability to receive prenatal care?, and As a pregnant woman who experienced this process, what are your expectations from healthcare professionals regarding improvements in care during this period?

Data Collection

The quantitative data were collected from the 258 participants between January 2021 and January 2022. All pregnant women admitted to the obstetrics and gynecology outpatient clinic were briefed about the research. Those who agreed to participate in the study and met the inclusion criteria filled out the data collection tools. All participants were informed that the research had a second, interview stage. They were asked to leave a phone number if they wanted to participate in this. After the first stage, the researchers evaluated participants' BAI scores and invited those with a BAI score of ≥ 16 to participate in the second stage. The sample of the qualitative part consisted of 17 participants. Both verbal and written consent was obtained from these women. The first researcher (female, PhD) interviewed them in a quiet and private room with no third parties present. The Consolidated Criteria for Reporting Qualitative Research (COREQ) was used to report the qualitative data.³⁰ Before the interview, the interviewer showed all the questions to each participant and asked her if she had any questions. The interviewer also told all participants that the interviews would be recorded but would not be shared. Throughout the interviews, the interviewer remained neutral, adopting a non-judgmental, and encouraging approach. The qualitative data were collected between January 2021 and February 2022. Each interview lasted 20 to 54 minutes.

Analysis of Quantitative Data

The quantitative data were analyzed using SPSS 23.0 statistical software. Frequencies (number and percentage) were used for categorical variables. Descriptive statistics (mean and standard deviation) were used for numerical variables. Pearson's correlation coefficient was used to determine the relationship between variables.

Analysis of Qualitative Data

The second researcher (male) transcribed all interviews verbatim after each interview. He listened to each repeatedly to check the accuracy of the transcriptions. He sent the transcriptions to the interviewees and asked them to check them. Afterwards, the data were analyzed. The qualitative data were analyzed using thematic analysis following the six-phase approach proposed by Braun and Clarke (2006). This method involves six steps: classifying data, identifying key statements, searching for themes, evaluating, defining, and reporting findings.³¹ In the first stage of the analysis, data classification, the researchers thoroughly reviewed the interview transcripts to gain familiarity with the data and initiate the categorization process. During the second stage, key statements were identified and systematically

coded. In the third stage, themes were generated based on the codes obtained. Subsequently, the consistency and relevance of the identified themes in relation to the codes were evaluated. In the following stage, the themes were clearly defined and refined. Finally, participants' statements were organized under the relevant themes and the findings were reported. Each researcher performed these steps independently. They dominated the interview by reading the participants' interview word for word. They repeatedly read the transcriptions, identified important statements and assigned codes to these statements. Then, they developed themes and subthemes and gathered the relevant statements under these. After the individual data analysis processes of all researchers were completed, they came together to discuss the appropriateness of the categories, themes and sub-themes. Following consensus was reached by the researchers, two expert opinions were obtained from obstetrics and gynecology and psychiatric nursing. Subsequent the expert opinion, the researchers came together again, reached a consensus and reported the data.

Trustworthiness of Qualitative Data

Several approaches are used to ensure the rigor and reliability of the qualitative data. These are credibility, dependability, confirmability, transferability, and transparency.³² The researchers are specialist in obstetrics and gynecology nursing, psychiatric nursing and medical doctor in obstetrics and gynecology. The first researcher also has pregnancy experience and has two children. Therefore, researchers know the physical, mental, social, and emotional problems experienced by pregnant women during the COVID-19 pandemic in line with their theoretical knowledge and observations. In this regard, semi-structured open-ended questions were created. All women were briefed about the research's purpose and procedure. Informed consent was obtained from those who agreed to participate. The researcher interviewed the participants one-on-one and posed them open-ended questions to ensure reliability. Second, the interviewer listened to all interviewees without indicating approval or disapproval, allowing them to express their emotions and thoughts freely. Third, the second researcher transcribed each interview verbatim and cross-checked it with the audio recording. Each interviewee was allowed to check her interview for accuracy. Fourth, each researcher analyzed the data independently. Then, they met and discussed the findings until they reached a consensus. The researchers developed themes and sub-themes out of the data and sent them to two experts with doctorates in obstetrics and gynecology nursing and psychiatric nursing for peer feedback. Finally, information about the aim of the research, data collection tool, data collection and analysis of data process was given and participants' statements were included to support findings.

Ethical Considerations

The study was approved by Aksaray University Human

Research Ethics Committee (18.12.2020, Ref: 2020/13-28). Written and verbal consent was obtained from all participants.

Results

Table 1 shows the participants' sociodemographic and pregnancy- and pandemic-related characteristics. Their mean (SD) age was 32.25(4.67) years. Most participants had bachelor's or higher degrees (75.9%). More than half had a middle income (income = expense) (59.7%). More than half had received treatment during pregnancy (bleeding, risk of miscarriage, pain, infection, etc.) (56.2%). Most had planned pregnancies (87.2%). More than half the participants were pregnant for the first time (58.5%). More than a quarter had other children (30.2%). Half were actively employed (51.9%). Twenty-two reported mental distress (8.5%), such as worry and sadness (40.9%). They reported anxiety for themselves (58.5%), their babies (69.8%), and their families (76.0%). They also reported anxiety because they could not receive healthcare (38.8%). Most stated that they received support from their husbands (86.4%), families (80.6%), friends (60.1%), or healthcare professionals (54.3%).

Quantitative Results

Participants had a mean (SD) BDI, BAI, and PSS scores of 10.60(6.35), 11.37(8.371), and 15.92(5.671), respectively. Their BDI scores were positively correlated with their BAI ($r = 0.67, P < 0.01$) and PSS scores ($r = 0.60, P < 0.01$). There was also a positive correlation between their BAI and PSS scores ($r = 0.64, P < 0.01$).

Qualitative Results

The qualitative data were grouped under four categories: (1) the impact of the COVID-19 pandemic, (2) the mental effects of the COVID-19 pandemic, (3) attitude towards healthcare services during the pandemic, and (4) expectations during the pandemic. There were seven themes and 14 subthemes (**Table 2**).

Category-1: The impact of the COVID-19 pandemic

Theme-1: Negative Impact

Subtheme-1: Disrupted Social Interaction

The participants stated that the pandemic and preventive measures had taken a toll on their lives. They could not communicate with their friends and did not leave home. The changes in social interaction affected them emotionally and mentally. They experienced stress, anxiety, and depression and felt lonely because they had been deprived of social support since the onset of the pandemic. One of the participants described the situation as follows: "We've been stuck at home since the pandemic...Being pregnant during this period and having a high-risk pregnancy, as in my case, is pretty challenging and frustrating because I can't get any social support. I talk to my friends on the phone or Facetime with them, which doesn't cut it. Since I got pregnant, I've been lying in bed...Besides, my husband is away at work, so I'm alone most of the time...I'm feeling

Table 1. Sociodemographic and pregnancy-related characteristics (n=258)

Variable	N (%)
Education (degree)	
Primary school	19 (7.4)
High school	43 (16.7)
Bachelor's	126 (48.8)
Postgraduate	70 (27.1)
Income	
Low income (income<expense)	31 (12.0)
Middle income (income=expense)	154 (59.7)
High income (income>expense)	73 (28.3)
Number of pregnancy	
1	151 (58.5)
2	61 (23.6)
≥3	46 (17.8)
Anxiety during the pandemic	
For one's health	
Yes	151 (58.5)
No	17 (6.6)
Partly	90 (34.9)
For the health of the baby	
Yes	180 (69.8)
No	25 (9.7)
Partly	53 (20.5)
For the health of the family	
Yes	196 (76.0)
No	13 (5.0)
Partly	49 (19.0)
Not receiving healthcare	
Yes	100 (38.8)
No	89 (34.5)
Partly	69 (26.7)
Spousal support during pandemic	
Yes	223 (86.4)
No	5 (1.9)
Partly	30 (11.6)
Family support during pandemic	
Yes	208 (80.6)
No	10 (3.9)
Partly	40 (15.5)
Support from friends during pandemic	
Yes	155 (60.1)
No	27 (10.5)
Partly	76 (29.5)
Support from healthcare professionals during pandemic	
Yes	140 (54.3)
No	31 (12.0)
Partly	87 (33.7)

lonely and looking forward to my husband coming back home.” (P-3)

Subtheme-2: Changes in Activities of Daily Living

Participants stated that the pandemic had drastically changed every aspect of their lives, affecting prenatal care negatively. They were concerned about their own and their babies' health and said the pandemic had taken an emotional and mental toll. One of the participants stated: “I want to go out to get some fresh air, but I can't stay outside for more than five minutes. I go out only for consultations. It's even hard for me to pay a visit to my doctor. I want to go out but I'm afraid...I'm thinking, what if I get infected, and so I can't take that risk. I feel like I'm under house arrest. For example, I want go shopping and buy some clothes. I can't do any shopping because I have to go to a shopping mall or a store, and I don't want to do that.” (P-11).

Subtheme-3: Impaired Family Relations

Participants stated that they suffered from disrupted family relations because of the daily stress of the pandemic that prevented them from celebrating special occasions. One stated: “My husband is normally a calm person, but even he has lost his patience during the pandemic. We've ended up arguing more, which has made our relationship more challenging...My kid has also been affected by the pandemic because she got stuck at home and couldn't go out to meet up with her friends...They all have higher levels of anxiety not only because of the pandemic but also because of the fact that we got stuck at home. I have anxiety because they have anxiety....” (P-1)

Theme-2: Positive Impact

Subtheme-1: Empowerment in Family Relations

Some participants stated that pregnancy made their family relations stronger. One woman said: “Both my parents and my husband's parents are so happy that I'm pregnant. Our family ties are stronger than ever. We haven't been able to meet, but we've always supported one another.” (P-6).

Category-2: The mental effects of the COVID-19 pandemic

Theme-1: Anxiety

Subtheme-1: Anxiety about losing the baby

Data on the effect of COVID-19 on pregnancy outcomes is limited. All participants stated that they were concerned about losing their babies if they ever got infected. One said: “The worst thing about being pregnant during the pandemic is that you let yourself go when you get infected with the virus. I read the stories of many women who lost their babies because they were not vaccinated. But, my main concern is about my baby...At the beginning of the pandemic, I didn't wear my mask properly because I couldn't breathe when it was on. But now, I wear two masks because I'm afraid something bad might happen to my baby.” (P-17)

Subtheme-2: Anxiety about being infected with COVID-19

Participants stated that they had intense anxiety about being infected with COVID-19. They had negative

Table 2. The study's themes and sub-themes

Theme	Sub-theme
The impact of the COVID-19 pandemic on pregnant women	
Negative impact	Disrupted social interaction
	Changes in activities of daily living
	Impaired family relations
Positive impact	Empowerment in family relations
The mental effects of the COVID-19 pandemic on pregnant women	
Anxiety	Anxiety about losing the baby
	Anxiety about being infected with COVID-19
	Physiological problems related to anxiety
Coping	Ineffective coping
Pregnant women's attitudes towards healthcare services during the pandemic	
Problems in receiving health care	Inability to receive effective and adequate healthcare
	Not seeking regular healthcare due to anxiety about being infected with COVID-19
Pregnant women's expectations during the COVID-19 pandemic	
Expectations regarding healthcare policies	More preventive healthcare services
	Effective communication
Expectations from healthcare professionals	Empathy
	Information

attitudes toward COVID-19 vaccines because there was uncertainty surrounding them. One woman said: *"I work at a hospital, so I'm pretty concerned about being infected with COVID-19. I'm thinking I might have it worse if I get infected with COVID-19 because of my chronic diseases. I'm worried that I might end up in an ICU. I'm fully vaccinated, but my antibody level is low... What worries me is that I have a low antibody level, although I'm fully vaccinated. I also have immune deficiency and asthma, which makes me more concerned..."* (P-12)

Subtheme-3: Physiological problems related to anxiety

Participants reported disturbed sleep patterns, palpitations, shortness of breath, and severe nausea, because they could not manage their anxiety. They discussed the emotional and mental toll of these. One woman said: *I have respiratory problems. I think the hormonal changes that I'm going through also have emotional and physical effects on me... I feel like I'm drowning as I struggle through... I can't control my stress, and I don't get any support from friends or family, which makes the situation much worse. I would like to go through this period with my mom or my relatives. But none of them are there for me...."* (P-3).

Theme-2: Coping

Subtheme-1: Ineffective coping

Participants stated that they had been unable to manage and cope with their feelings because of their sense of loneliness and lack of social support. One woman said: *"I've been going through intense emotions lately. I'm normally a tough nut; I don't cry that often. Whatever I'm going through I handle it myself, but I sometimes want to go and cry my guts out... I feel like I can't fit into my home, I feel like the walls are coming down on me. I've been feeling this way for*

the last week. My husband has no idea what's wrong with me." (P-14)

Category-3: Pregnant women's attitude towards health services

Theme-1: Problems in receiving health care

Subtheme-1: Inability to access effective and adequate healthcare

Participants went to private hospitals because public hospitals had allocated all their resources to fight the pandemic, and there were no appointments available. They could not obtain the treatment they needed because it was more expensive in these hospitals than in public ones. This also made them worried. One of the participants described the situation as follows: *"I wanted to see my baby, but I couldn't get any appointments, which made me sad. I wanted to hear my baby's heartbeat, so I wanted to go and see my doctor as soon as I found out that I was pregnant, but I couldn't get any appointments... I don't want to go into busy hospitals, but I have to because private hospitals are too expensive... When I wanted to go for my first consultation, I couldn't get an appointment for a month. It was just impossible. I went for my first consultation in my first trimester."* (P-8).

Subtheme-2: Not seeking regular healthcare due to anxiety about being infected with COVID-19

Participants had postponed their prenatal care, including diagnostic tests, due to their anxiety about being infected with COVID-19. One woman said: *"I had severe diarrhea and then severe constipation. I thought about whether I should go and see a doctor, and, in the end, I decided not to. There is this dual and triple test in pregnancy. But I sometimes consider not getting those tests done because what*

if I get infected with COVID-19? In any case, I'll give birth to my baby, either healthy or sick...I think COVID-19 is more dangerous." (P-15)

Category-4: Pregnant women's expectations

Theme-1: Expectations regarding healthcare policies

Subtheme-1: More preventive healthcare services

Participants recommended that hospitals share tasks to reduce their workloads and minimize the spread of the coronavirus. They also demanded more preventive healthcare services. One woman said: *"I think pregnant women should turn to primary healthcare services because obstetrics clinics are too busy. I mean, there are too many patients, and healthcare professionals have to see more than 100 patients every day, which makes the spread of the coronavirus worse. So, that's why I think that pregnant women should go to primary healthcare services for the sake of both patients and doctors. Family doctors and midwives should monitor pregnant women in a more detailed way, just like in other countries."* (P-12)

Theme-2: Expectations of healthcare professionals

Subtheme-1: Effective communication

Participants knew how busy healthcare professionals had been since the pandemic. However, they needed them to be more understanding and attentive. They also added that they wanted healthcare professionals to communicate with them effectively. One woman said: *"Healthcare professionals are too intolerant. I remember a couple of occasions where they treated me very poorly, although I was very nice to them. I go and visit them because I'm sick and I need their help. I just can't communicate with them when they treat me poorly. I mean, I don't want special treatment or anything like that. I just want them to be more tolerant and understanding...I know that the pandemic has also taken a toll on them...But they need to be more professional and have better communication skills."* (P-10)

Subtheme-2: Empathy

Participants expected healthcare professionals to empathize with them, understand them better, and make them feel better. One woman said: *"Absolutely empathy. I mean, it's important to understand what others feel. This is my third doctor. I had very bad experiences with my second doctor. I couldn't get over it for months. He was a very famous doctor, but the whole thing was utterly terrible...A couple of days ago, I said to my nurse, 'I feel at home here.' This is very important. Understanding and empathy are critical."* (P-17)

Subtheme-3: Information

Participants expected healthcare professionals to inform them about COVID-19 vaccines and answer their other questions. One woman gave an account of what she had once been through: *"Back then, everybody was getting vaccinated. But unfortunately, everybody was talking about the effects of vaccines on pregnant women. Politicians and even those who had received no education in medicine talked about the possible effects...I think healthcare institutions*

and hospitals should collect data on how many pregnant women have been vaccinated and how they have been doing. They should also announce their findings. They should at least inform us about those issues. I mean, we would also get vaccinated if we knew their effects on us. I believe that authorities and healthcare professionals should provide numerical data to prevent misinformation." (P-11)

Discussion

The COVID-19 pandemic was the first and greatest threat of the first quarter of the twenty-first century. As a global issue, the effects of which are ongoing, it was thought that it could be best addressed by multilateral cooperation. Pandemics affect everybody, but take a greater toll on vulnerable groups, such as pregnant women. This study adopted a mixed research design to determine the stress, anxiety, and depression levels of pregnant women during the COVID-19 pandemic.

There was a positive correlation between the participants' BDI, BAI, and PSS scores. There was also a positive correlation between their BAI and PSS scores. The pandemic and the uncertainty surrounding it caused mental problems, such as stress, anxiety, and depression.^{33,34} The pandemic and the psychosocial crisis that came with it made pregnant women more likely to experience stress, putting them at an increased risk of physiological problems.³³⁻³⁵ Pregnant women experienced anxiety and depression, and suffered from physical and mental problems since the pandemic started because they had to deal with social isolation, had difficulty accessing healthcare services, had their prenatal care postponed, and experienced the fear of being infected with COVID-19.¹⁹ When the studies in the literature are examined, it is emphasized that pregnant women are at great risk for depression, anxiety and stress during the COVID-19 pandemic period.⁷⁻⁹ The observed associations between stress, anxiety, and depression highlight the need to better understand the impact of the pandemic on pregnant women's mental health in order to prevent subsequent adverse outcomes for mothers and their babies.

The interviews with participants with high anxiety levels revealed four categories. The first category was the impact of the COVID-19 pandemic consisting of the themes of "positive impact" and "negative impact." As positive impacts, participants stated that empowerment in family relations. Rokicki et al¹¹ stated in their study that the COVID-19 pandemic had some positive effects on pregnant women and strengthened family ties. As for negative effects, the participants stated that disrupted social interaction, changes in activities of daily living, and impaired family relationships. Every individual need social support, but in pregnancy, which is a developmental crisis, the social support needs of pregnant women may be even greater. Inadequacy in social support causes individuals to experience more stress, anxiety and depression symptoms and psychosocial problems. Research shows that pregnant women argued more with their husbands, suffered from disrupted family relations and experienced more mental

health problems due to COVID-19.³³ The pandemic prevented pregnant women from enjoying their sources of social support (parents, friends, husbands, healthcare professionals, etc.).³⁶ The participants in the present study stated that the pandemic had hindered access to maternal healthcare services, causing them to avoid or postpone prenatal care. They noted that they had had more feelings of loneliness during the pandemic. However, some participants remarked that family relationships had become stronger as they received more support from their husbands and shared their emotions and thoughts more. A Research showed that couples became more understanding of, and affectionate with, each other and felt like their marriages became stronger during the pandemic.³⁷

The category of “the mental effects of the COVID-19 pandemic” consisted of the themes of “anxiety” and “coping.” Under the theme of anxiety, participants mentioned losing their babies, being infected with the COVID-19, and physical symptoms caused by anxiety. Under the theme of coping, there was a sub-theme of ineffective individual coping. The COVID-19 pandemic caused pregnant women to worry about their own health and the health of their babies.⁶ Mirzadeh & Khedmat³⁸ reported that prospective first-time mothers had more negative emotional states during the pandemic. In another study, it was found that pregnant women were mentally challenged due to various situations such as social isolation, anxiety about losing their babies and being infected with the COVID-19, and economic hardship.¹¹ However, the pandemic prevented pregnant women from receiving face-to-face prenatal care³⁹ and going through pregnancy with their families and loved ones.²³ All these problems caused pregnant women to experience stress and anxiety. Pregnant women experienced higher levels of stress and anxiety because they were unable to access their sources of support and healthcare services and were also suffering from uncertainty, financial problems, and, in some instances, domestic violence.

The third category was “pregnant women’s attitude towards health services”. Under this category, the theme of problems in receiving health services was identified and the participants stated that they could not receive adequate and effective health services. Pregnant women were concerned about visiting their doctors because they were afraid of getting infected with the coronavirus. They refused to receive prenatal care because they found it too risky. Rokicki et al¹¹ reported that pregnant women did not receive effective and adequate prenatal and psychological care, and that they were afraid and anxious about giving birth in the hospital and being affected by the COVID-19. They also preferred to undergo C-sections because they considered the waiting period in normal delivery risky in terms of infection.² Pregnancy requires uninterrupted prenatal care because it is a risky period in which the dividing line between health and disease can change at any time. However, most pregnant women were unable to access prenatal care during the pandemic for two reasons. First, there was ongoing uncertainty surrounding the

pandemic. Second, the coronavirus caught the whole world off guard, and therefore, there were no guidelines regarding prenatal care. The lack of effective healthcare policies was the greatest barrier preventing pregnant women from receiving prenatal care.

The fourth category was “pregnant women’s expectations during the COVID-19 pandemic.” Under this category, the expectations of pregnant women from health policies and health workers were determined and pregnant women stated that more preventive treatment services should be provided. They also asked health workers to communicate effectively, empathize and inform them. Pregnant women who did not know much about the impact of the coronavirus on pregnancy and did not communicate with healthcare professionals adequately turned to social media platforms to access information, causing them to experience higher levels of stress and anxiety.¹⁷ Healthcare professionals should have informed pregnant women better about the coronavirus and vaccination, and should continue to do so if and when future pandemics occur.

This study has two limitations. First, the data obtained from this study were collected from a single center and based on self-report of the participants, and pregnant women with a previous mental problem were not included in the study. Therefore, the data obtained cannot be generalized. Therefore, researchers should recruit larger samples, adopt mixed research designs (quantitative and qualitative), and conduct multi-centered studies to more fully determine the impact of the COVID-19 pandemic on pregnant women. At the same time, it is recommended to conduct studies to evaluate how women with previous mental problems are affected in social crises such as the COVID-19 pandemic. Second, the sample of the qualitative section consisted only of participants with moderate to high anxiety levels. Those with low anxiety levels were not included in this section. In situations that lead to a universal crisis such as the COVID-19 pandemic, it is recommended to conduct intervention studies to support pregnant women psychologically.

Conclusion

In this study, pregnant women experienced elevated levels of stress, anxiety, and depression during the COVID-19 pandemic. This psychological burden was associated with reduced social support, disrupted family relationships, fear of adverse pregnancy outcomes, and limited access to adequate healthcare services due to infection concerns. These findings suggest that pregnant women were particularly vulnerable to the psychosocial impacts of the pandemic. Therefore, it is important to ensure effective prenatal and postnatal care strategies during future global crises. In this context, telenursing practices may play a significant role in monitoring the physical and psychological well-being of pregnant women and maintaining continuity of care.

Acknowledgments

We are thankful the pregnant women who agreed to contribute to the study.

Authors' Contribution

Conceptualization: Rabiye Akın Işık, Yunus Kaya
 Data Curation: Rabiye Akın Işık, Yunus Kaya
 Formal Analysis: Rabiye Akın Işık, Yunus Kaya
 Investigation: Rabiye Akın Işık, Yunus Kaya, Ahmet Erdem
 Methodology: Rabiye Akın Işık, Yunus Kaya
 Project Administration: Rabiye Akın Işık, Yunus Kaya, Ahmet Erdem
 Resources: Rabiye Akın Işık, Yunus Kaya, Ahmet Erdem
 Software: Rabiye Akın Işık, Yunus Kaya
 Supervision: Rabiye Akın Işık, Yunus Kaya
 Validation: Rabiye Akın Işık, Yunus Kaya, Ahmet Erdem
 Visualization: Rabiye Akın Işık, Yunus Kaya
 Writing-Original Draft: Rabiye Akın Işık, Yunus Kaya, Ahmet Erdem
 Writing-Review & Editing: Rabiye Akın Işık, Yunus Kaya

Competing Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Data Availability Statement

The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

Ethical Approval

The study received approval from a human research ethics committee (Date: 18.12.2020, & No: 2020/13-28) and obtained permission from the university hospital. All eligible pregnant women were provided with detailed information regarding the research's objectives and procedures. Informed consent was acquired from those who willingly chose to participate.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

References

- Zhang H, Wang H, Xie X, Xiao AY, Ali M, Kim C, et al. Evaluating health system barriers to sexual and reproductive health service delivery during the COVID-19 pandemic in China: a mixed-methods study. *Reprod Health* 2025;22(Suppl 3):162. doi:10.1186/s12978-025-02093-z
- Liu X, Chen M, Wang Y, Sun L, Zhang J, Shi Y, et al. Prenatal anxiety and obstetric decisions among pregnant women in Wuhan and Chongqing during the COVID-19 outbreak: a cross-sectional study. *BJOG* 2020;127(10):1229-40. doi:10.1111/1471-0528.16381
- Fairbrother N, Keeney CL, Albert AK. Interest in prenatal stress management training: association with medical risk and mental health. *J Reprod Infant Psychol* 2025;43(3):573-87. doi:10.1080/02646838.2023.2254800
- Pan WL, Lin LC, Kuo LY, Chiu MJ, Ling PY. Effects of a prenatal mindfulness program on longitudinal changes in stress, anxiety, depression, and mother-infant bonding of women with a tendency to perinatal mood and anxiety disorder: a randomized controlled trial. *BMC Pregnancy Childbirth* 2023;23(1):547. doi:10.1186/s12884-023-05873-2
- Puertas-Gonzalez JA, Mariño-Narvaez C, Romero-Gonzalez B, Vilar-López P, Peralta-Ramírez MI. Resilience, stress and anxiety in pregnancy before and throughout the pandemic: a structural equation modelling approach. *Curr Psychol* 2022;1-11. doi:10.1007/s12144-022-03305-6
- Ravaldi C, Wilson A, Ricca V, Homer C, Vannacci A. Pregnant women voice their concerns and birth expectations during the COVID-19 pandemic in Italy. *Women Birth* 2021;34(4):335-43. doi:10.1016/j.wombi.2020.07.002
- Tauqeer F, Ceulemans M, Gerbier E, Passier A, Oliver A, Foulon V, et al. Mental health of pregnant and postpartum women during the third wave of the COVID-19 pandemic: a European cross-sectional study. *BMJ Open* 2023;13(1):e063391. doi:10.1136/bmjopen-2022-063391
- Birkelund KS, Rasmussen SS, Shwank SE, Johnson J, Acharya G. Impact of the COVID-19 pandemic on women's perinatal mental health and its association with personality traits: an observational study. *Acta Obstet Gynecol Scand* 2023;102(3):270-81. doi:10.1111/aogs.14525
- Rabinowitz EP, Kutash LA, Richeson AL, Sayer MA, Samii MR, Delahanty DL. Depression, anxiety, and stress in pregnancy and postpartum: a longitudinal study during the COVID-19 pandemic. *Midwifery* 2023;121:103655. doi:10.1016/j.midw.2023.103655
- 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;295:113567. doi:10.1016/j.psychres.2020.113567
- Rokicki S, Mackie TI, D'Oria R, Flores M, Watson A, Byatt N, et al. A qualitative investigation of the experiences of women with perinatal depression and anxiety during the COVID-19 pandemic. *Matern Child Health J* 2024;28(2):274-86. doi:10.1007/s10995-023-03809-y
- Jones K, Harrison V, Moulds ML, Lazard L. A qualitative analysis of feelings and experiences associated with perinatal distress during the COVID-19 pandemic. *BMC Pregnancy Childbirth* 2022;22(1):572. doi:10.1186/s12884-022-04876-9
- Poon LC, Yang H, Lee JCS, Copel JA, Leung TY, Zhang Y, et al. ISUOG Interim Guidance on 2019 novel coronavirus infection during pregnancy and puerperium: information for healthcare professionals. *Ultrasound Obstet Gynecol* 2020;55(5):700-8. doi:10.1002/uog.22013
- Adamson B, Letourneau N, Lebel C. Prenatal maternal anxiety and children's brain structure and function: a systematic review of neuroimaging studies. *J Affect Disord* 2018;241:117-26. doi:10.1016/j.jad.2018.08.029
- MacKinnon N, Kingsbury M, Mahedy L, Evans J, Colman I. The association between prenatal stress and externalizing symptoms in childhood: evidence from the Avon Longitudinal Study of Parents and Children. *Biol Psychiatry* 2018;83(2):100-8. doi:10.1016/j.biopsych.2017.07.010
- World Health Organization (WHO). Managing the COVID-19 Infodemic: Promoting Healthy Behaviours and Mitigating the Harm from Misinformation and Disinformation. WHO; 2020. Available From: <https://www.who.int/news/item/23-09-2020-managing-the-covid-19-infodemic-promoting-healthy-behaviours-and-mitigating-the-harm-from-misinformation-and-disinformation>. Accessed March 10, 2023.
- Holmes EA, O'Connor RC, Perry VH, Tracey I, Wessely S, Arseneault L, et al. Multidisciplinary research priorities for the COVID-19 pandemic: a call for action for mental health science. *Lancet Psychiatry* 2020;7(6):547-60. doi:10.1016/s2215-0366(20)30168-1
- Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S, Greenberg N, et al. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *Lancet* 2020;395(10227):912-20. doi:10.1016/s0140-6736(20)30460-8
- Wu Y, Zhang C, Liu H, Duan C, Li C, Fan J, et al. Perinatal depressive and anxiety symptoms of pregnant women during the coronavirus disease 2019 outbreak in China. *Am J Obstet Gynecol* 2020;223(2):240.e1-9. doi:10.1016/j.ajog.2020.05.009
- Creswell JW, Plano Clark VL. *Karma Yöntem Araştırmaları Tasarımı ve Yürütülmesi*. 2nd ed. Anı Yayıncılık; 2015.
- Creswell JW. *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. 3rd ed. California: SAGE Publications; 2012. p. 65-110.
- Effati-Daryani F, Zarei S, Mohammadi A, Hemmati E, Ghasemi Yngykd S, Mirghafourvand M. Depression, stress, anxiety and their predictors in Iranian pregnant women during the outbreak

- of COVID-19. *BMC Psychol* 2020;8(1):99. doi:[10.1186/s40359-020-00464-8](https://doi.org/10.1186/s40359-020-00464-8)
23. 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* 2020;277:5-13. doi:[10.1016/j.jad.2020.07.126](https://doi.org/10.1016/j.jad.2020.07.126)
 24. Beck AT, Ward CH, Mendelson M, Mock J, Erbaugh J. An inventory for measuring depression. *Arch Gen Psychiatry* 1961;4:561-71. doi:[10.1001/archpsyc.1961.01710120031004](https://doi.org/10.1001/archpsyc.1961.01710120031004)
 25. Hisli N. A study on the validity of Beck Depression Inventory. *Psikol Derg* 1988;6:118-22.
 26. Beck AT, Epstein N, Brown G, Steer RA. An inventory for measuring clinical anxiety: psychometric properties. *J Consult Clin Psychol* 1988;56(6):893-7. doi:[10.1037//0022-006x.56.6.893](https://doi.org/10.1037//0022-006x.56.6.893)
 27. Ulusoy M, Sahin NH, Erkmen H. Turkish version of the Beck Anxiety Inventory: psychometric properties. *J Cogn Psychother* 1998;12(2):163-72.
 28. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. *J Health Soc Behav* 1983;24(4):385-96. doi:[10.2307/2136404](https://doi.org/10.2307/2136404)
 29. Eskin M, Harlak H, Demirkıran F, Dereboy Ç. The adaptation of the perceived stress scale into Turkish: a reliability and validity analysis. *Neuropsychiatr Investig* 2013;51(3):132-40.
 30. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care* 2007;19(6):349-57. doi:[10.1093/intqhc/mzm042](https://doi.org/10.1093/intqhc/mzm042)
 31. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol* 2006;3(2):77-101. doi:[10.1191/1478088706qp063oa](https://doi.org/10.1191/1478088706qp063oa)
 32. Adler RH. Trustworthiness in qualitative research. *J Hum Lact* 2022;38(4):598-602. doi:[10.1177/08903344221116620](https://doi.org/10.1177/08903344221116620)
 33. Khoury JE, Atkinson L, Bennett T, Jack SM, Gonzalez A. COVID-19 and mental health during pregnancy: the importance of cognitive appraisal and social support. *J Affect Disord* 2021;282:1161-9. doi:[10.1016/j.jad.2021.01.027](https://doi.org/10.1016/j.jad.2021.01.027)
 34. Lin CY, Imani V, Majd NR, Ghasemi Z, Griffiths MD, Hamilton K, et al. Using an integrated social cognition model to predict COVID-19 preventive behaviours. *Br J Health Psychol* 2020;25(4):981-1005. doi:[10.1111/bjhp.12465](https://doi.org/10.1111/bjhp.12465)
 35. Jahrami HA, Alhaj OA, Humood AM, Alenezi AF, Fekih-Romdhane F, AlRasheed MM, et al. Sleep disturbances during the COVID-19 pandemic: a systematic review, meta-analysis, and meta-regression. *Sleep Med Rev* 2022;62:101591. doi:[10.1016/j.smr.2022.101591](https://doi.org/10.1016/j.smr.2022.101591)
 36. Riley V, Ellis N, Mackay L, Taylor J. The impact of COVID-19 restrictions on women's pregnancy and postpartum experience in England: a qualitative exploration. *Midwifery* 2021;101:103061. doi:[10.1016/j.midw.2021.103061](https://doi.org/10.1016/j.midw.2021.103061)
 37. Prime H, Wade M, Browne DT. Risk and resilience in family well-being during the COVID-19 pandemic. *Am Psychol* 2020;75(5):631-43. doi:[10.1037/amp0000660](https://doi.org/10.1037/amp0000660)
 38. Mirzadeh M, Khedmat L. Pregnant women in the exposure to COVID-19 infection outbreak: the unseen risk factors and preventive healthcare patterns. *J Matern Fetal Neonatal Med* 2022;35(7):1377-8. doi:[10.1080/14767058.2020.1749257](https://doi.org/10.1080/14767058.2020.1749257)
 39. Coxon K, Turienzo CF, Kweekel L, Goodarzi B, Brigante L, Simon A, et al. The impact of the coronavirus (COVID-19) pandemic on maternity care in Europe. *Midwifery* 2020;88:102779. doi:[10.1016/j.midw.2020.102779](https://doi.org/10.1016/j.midw.2020.102779)