

Depression, Anxiety, and Stress among Pregnant Women During the Spread of COVID-19 Virus in Jordan

Abstract

Background: The COVID-19 infection showed serious psychological influences on pregnant women's mental health that required psychological evaluation and intervention to overcome the negative consequences developed during the COVID-19 pandemic. The main goal of the present study was to evaluate depression, anxiety, and stress among pregnant women during the spread of the COVID-19 pandemic in Jordan. **Materials and Methods:** This cross-sectional correlation study was carried out among pregnant women in Jordan. From April to June 2022, data were collected from three hospitals in Jordan (two public and one private). The Arabic version of the Depression, Anxiety, and Stress Scale 21 items (DASS-21) was used to collect the data. Data were collected from 355 participants and then analyzed. **Results:** During the COVID-19 pandemic, pregnant women experienced mild levels of stress (mean (SD) = 14.43, 4.46) and anxiety (mean (SD) = 9.06, 4.60), with no depression (mean (SD) = 8.12, 4.04). Jordanian women had lower stress levels (mean (SD) = 13.07, 4.49) compared to non-Jordanian women (mean (SD) = 15.15, 4.32) ($t = 5.26, p < .05$). Employed women (mean (SD) = 15.74, 4.39) had higher stress levels than non-employed women (mean (SD) = 12.76, 4.73) ($t = 3.35, p < .05$). Women with a bachelor's degree or higher (mean (SD) = 15.64, 4.44) also experienced more stress than those with less education (mean (SD) = 12.96, 4.20) ($t = 2.63, p < .05$). No statistically significant differences in stress levels were found based on marital status or pregnancy stage ($p > .05$). **Conclusions:** The study emphasizes the importance of integrating targeted antenatal support for pregnant women during the COVID-19 pandemic. Elevated stress levels emphasize the need for proactive measures to prevent maternal complications. Practical steps to address these challenges are crucial, promoting the well-being of expectant mothers and enhancing the resilience of maternal healthcare systems.

Keywords: Anxiety disorder, COVID-19, mental health, pandemic, pregnant women, psychological stress

Introduction

The coronavirus pandemic has inflicted unprecedented challenges on global healthcare systems, with pregnant individuals being particularly vulnerable to its far-reaching consequences. These challenges extend beyond the physical realm, encompassing profound psychological impacts that necessitate a nuanced understanding and timely intervention. Pregnant women at any stage of their pregnancy are at risk of having psychological disorders of variable severity. During the COVID-19 epidemic, pregnant women were concerned about their health, the health of their families, and the health of their unborn offspring. As a result, these stressors are related to infection, social

isolation and limited social support, a lack of antenatal care, financial issues associated with pandemic spread, lockdown, pregnancy, health, or birthing, or both.^[1]

Pregnant women are particularly vulnerable to mental health issues since the expansion of the COVID-19 pandemic has resulted in collective traumatic experiences that have a negative impact on pregnant women's mental health.^[2,3] The propagation of the COVID-19 pandemic has a significant psychological impact on the mental health of pregnant mothers. To overcome the negative effect of the COVID-19 pandemic spread and accompanying precautionary measures, psychological evaluation and assistance were required.^[4] Women during pregnancy experience hormonal changes that may increase their susceptibility to

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psychological distress, which may harm the mother and the fetus.^[2] Furthermore, psychological distress during pregnancy may have unfavorable complications, such as increasing the chances of low birth weight, preterm birth, miscarriage, poorer Apgar scores, and fetal mortality.^[2] Depression and anxiety affect one out of every seven pregnant women and are linked to a higher risk of preterm birth, a weaker mother-baby relationship, and a poor influence on newborn cognitive and emotional development, which is visible during childhood.^[5]

The possible study findings could assist Jordanian healthcare professionals in developing complete preparations for pregnant women to avoid mental traumatic side effects during the spread of COVID-19 and future infectious disease epidemics. This study aims to explore the level of depression, anxiety, and stress among pregnant women during the COVID-19 pandemic in Jordan.

Materials and Methods

This is a descriptive and cross-sectional study carried out from April to June 2022 in the Al-Mafraq governorate/Jordan. The data were collected from three hospitals (two governmental and one private) in the Al-Mafraq governance in Jordan's northeast region. Those hospitals were selected because they are large and receive most of the cases in the Al-Mafraq governorate. All pregnant women over the age of 18 living in the Al-Mafraq governance were included in the study. The accessible population was all pregnant women over 18 years of age visiting the selected hospitals. The sample was recruited conveniently from pregnant women visiting hospitals looking for routine care and who agreed to participate in the current study. To determine the minimum sample size of the study participants, the researcher calculated it by using G*Power 3.1.2 and selecting *t*-test and ANOVA tests based on a conventional power of 0.80 and statistical significance of 0.05. The minimum number of participants needed for the total number of participants estimated for this study is 335. This number was increased by 20% to control attrition and exclude questionnaires that were not completed and had missing data. The required sample size was 335 plus 76 participants to avoid attrition, yielding a total of approximately 400 participants. The inclusion criteria were (1) pregnant women above 18 years old, (2) who were able to read and write Arabic, and (3) who accepted to participate in this study. The exclusion criteria were: (1) women who were diagnosed as high-risk pregnancy (because those women already experiencing a stressful situation), and (2) women who reported having a mental disorder. Meetings were conducted with nursing administrative and unit head nurses. These meetings aim to introduce the researcher to the hospital team and explain the study's purposes of getting their support and helping in data collection. The data collection started on March 21, 2022, for 1 month by approaching the pregnant women during their waiting and free time to ensure that there is

no interruption to their treatment or the aim of their visit to the hospital/clinic. Then the researcher explained to them the study's purpose and asked them to participate. The completed questionnaires were collected in sealed envelopes and kept at the researcher's office. Data were collected through a questionnaire consisting of a cover letter for the participants, a demographic variables section for participants, and the Depression, Anxiety, and Stress Scale 21 items (DASS-21). The first section has a cover letter that has an explanation of the aim of the study, the researcher's contact details, the benefits of the study, and the participant consent form. The second section contains participants' sociodemographic data including age, education level (high school or less, diploma degree, university degree, and post-graduate degree), marital status (married, divorced, and widowed), nationality, and pregnancy trimester (first, second, and third). The third section has the Arabic version of the Depression, Anxiety, and Stress Scale 21 items (DASS-21).^[6] It is a self-reported scale developed to measure the emotional state of depression, anxiety, and stress. It has three subscales with seven items for each subscale. DASS-21 is a Likert scale response range from zero (did not apply to me at all) to three (applied to me very much or most of the time). The use of the scale is free, and no further permission is needed from the author under the ethical concerns.^[7] The reported reliability using Cronbach's alpha was 0.80 for the anxiety subscale, 0.78 for the depression subscale, and 0.77 for the stress subscale.^[7,8] Statistical Package for the Social Sciences (SPSS) program version 23 was used in the data analysis (SPSS Inc., Chicago, Ill., USA). To answer the first question, A total score for each subscale of the DASS-21 was calculated, and the whole mean score for each subscale for the whole sample was calculated and reported accordingly.^[9] To answer the second question, after having the total score for the subscale, the best test to be used for that is the Independent *T*-test and One-way ANOVA test to test and describe the differences between studied variables and to which degree these associations are affected.^[9]

Ethical considerations

In this study, Institutional Review Board (IRB) approval was obtained from the Scientific Research and Ethics Committee of the College of Nursing/Al al-Bayt University (IRB No. 2022/2; date February 15, 2022). Obtaining the approval of the MOH department to facilitate our access to the target sites for data collection.

Results

Sociodemographic characteristics

Table 1 shows the participants' sociodemographic variables. Regarding age, the participant's mean (standard deviation) age was 29.60 (standard deviation = 7.20) years. The majority of participants were Jordanian (73.40%).

Regarding jobs, the majority of respondents were households (61.60%). Participants' levels of education were at the school level (57.10%). The majority of participants' marital status responses were married (97.40%). Regarding pregnancy trimester, Pregnant women in the first trimester were 29%, pregnant women in the second trimester were 31.70%, and pregnant women in the third trimester were 39.30%.

Descriptive and inferential analysis

The researcher computes the frequency, percentage, mean, and standard deviation for each item of depression, anxiety, and stress among pregnant women during the COVID-19 pandemic. According to the analysis and the scale's recommended cut-off point [see Table 1], pregnant women at the time of the COVID-19 pandemic had stress mean (standard deviation) equal 14.43 (4.46) and anxiety mean was 9.06 (4.60) at mild levels, and no depression mean = 8.12 (4.04) [see Table 2]. The results show that Jordanian women have lower level of stress mean = 13.07 (4.49) compared with non-Jordanian women mean = 15.15 (4.32) ($t = 5.26, p < .05$). Employed women mean = 15.74 (4.39) have greater level of stress compared with non-employed women mean 12.76 (4.73) ($t = 3.35, p < .05$). Finally, the results show that women with bachelor's degree and higher mean = 15.64 (4.44) have

greater stress level than women below bachelor's degree mean = 12.96, (4.20) ($t = 2.63, p < 0.05$). However, no statistically significant differences ($p > .05$) in women's stress level were found based on their marital status or pregnancy stage [see Table 3].

Discussion

This study aims to explore the level of depression, anxiety, and stress among pregnant women during the COVID-19 pandemic in Jordan. The current study findings show that pregnant women in Jordan during the COVID-19 pandemic had mild stress levels. This might be because pregnant women were worried about the potential impact of COVID-19 infection on birth and the danger of virus transfer from the mothers to their fetus.^[10] Women in our study may have lower stress levels than other previous studies. For example, the findings of a study in Spain revealed that there was a considerably higher degree of stress among pregnant women during the COVID-19 pandemic compared to pregnant women before the pandemic.^[11] Other findings from a meta-analysis study revealed that there was a considerably higher degree of stress among pregnant women during the COVID-19 pandemic.^[12] This could be explained by the fact that the study was conducted at the end of the COVID-19 epidemic, and the subjects were accustomed to the stress levels that they had been experiencing for a long period.

According to current study findings, pregnant women in Jordan during the COVID-19 pandemic had no depression mean = 8.12 (4.04); this could be due to participants becoming accustomed to the economic, social, and health-related challenges as a result of the nationwide pandemic, which aggravate depressive symptoms.^[13] This depression level is not comparable to a recent study, which found that the majority of Jordanian pregnant women reporting depression.^[14] Our study, conducted in 2022 as the COVID-19 pandemic subsided, suggests that participants, accustomed to living with pandemic circumstances, experienced reduced stress. The timing of the study, coinciding with the end of the pandemic, is a crucial factor influencing these findings. Importantly, the researcher acknowledges this temporal aspect as a confounding variable. Furthermore, the findings of a Chinese investigation (the prevalence of depression was 12.3%) revealed a link between the spread of the COVID-19 pandemic and reported depression among pregnant women.^[15] Furthermore, findings from a thorough analysis of internet databases revealed that overall depression levels were greater during the pandemic period than during the non-pandemic period.^[10]

One interesting finding of our study is that non-Jordanian women experienced more stress than Jordanian women did. This could be because pregnant women from other nationalities were away from home and their relatives' social support, in addition to the economic issues they face,

Table 1: Women's sociodemographic variables

Demographic variables	Number (%)
Nationality	
Jordanian	257 (73.40)
Non-Jordanian	97 (26.60)
Employment status	
Household	243 (69.70)
Privet sector Employee	31 (8.40)
Public sector Employee	70 (19.40)
Student	11 (2.60)
Education level	
School level	203 (57.10)
Diploma and Bachelor's level	136 (38.30)
Post-graduate level	16 (4.50)
Marital status	
Married	339 (97.40)
Separated	16 (2.60)
Pregnancy stage	
First trimester (<3 months)	104 (29.00)
Second trimester (3–6 months)	113 (31.70)
Third trimester (>6 months)	138 (39.30)

Table 2: Depression, anxiety, and stress among pregnant women at the time of the COVID-19 pandemic

Factor	Mean (SD)
Stress	14.43 mild (4.46)
Anxiety	9.06 mild (4.60)
Depression	8.12 no depression (4.04)

Table 3: The mean difference in stress level based on sociodemographic variables

Demographic variables	Number (%)	Mean (standard deviation)	Degree of freedom	t-test	p
Nationality					
Jordanian	257 (72.60)	13.07 (4.49)	354	5.26	0.05*
Non-Jordanian	97 (27.40)	15.15 (4.32)			
Employment status					
Not employed	243 (68.45)	12.76 (4.73)	352	3.35	0.036*
Employed	112 (31.55)	15.74 (4.39)			
Education level					
Below bachelor's level	203 (79.60)	12.96 (4.20)	354	2.63	0.034*
Bachelor's level and higher	152 (20.40)	15.64 (4.44)			
Marital status					
Married	339 (95.50)	14.65 (4.49)	351	0.269	0.848
Separated	16 (0.50)	14.00 (4.12)			
Demographic variables	n	Mean (standard deviation)	Degree of freedom	F-test	p
Pregnancy stage					
First trimester (<3 months)	104	11.01 (4.11)	350	1.42	0.244
Second trimester (3–6 months)	113	10.02 (4.75)	354		
Third trimester (>6 months)	138	10.19 (4.46)			

*Significant at 0.05

as the majority of their husbands are daily laborers who receive modest daily wages. Furthermore, travel limitations during the COVID-19 outbreak resulted in various changes in the way antenatal care was provided to pregnant women by their families' physicians.^[14] Another interesting finding that unemployed women have significantly lower levels of stress than employed women. One explanation for this finding is that employed women have accumulation of stress from both work during COVID-19 and pregnancy during this period.^[16] In terms of education level, current study findings show that there is a statistically significant difference in stress level based on participants' education level, with participants with a bachelor's degree and higher experiencing more stress than women with below bachelor's degree. Educated people can study more from many scientific resources, which increases their understanding of the problem and increases their reaction to surrounding crucial conditions as COVID-19 spreads, which increases the degree of stress for them and those around them.^[17] People with below bachelor's degrees, however, may be uninformed of the crisis's proportions. The current study's findings differ from those of a Chinese study that found that post-graduate education levels among pregnant women were related to reduced levels of depression as compared to pregnant women with lower educational levels at the time of the COVID-19 pandemic's expansion.^[17]

There are several limitations to this study: For example, the duration of data collection was 1 month, including Ramadan (a fasting month for Muslims), which may have reduced the response rate. Many eligible participants did not agree to participate either because they were tired or not in the mood. This led to spending more time looking for eligible participants willing to participate in the study. The study was conducted in one region in Jordan. Therefore,

the results may not apply to other parts of Jordan or the rest of the world.

Conclusion

The findings of our study underscore the pressing need for practical interventions to support the mental well-being of pregnant women in Jordan during the COVID-19 pandemic. We observed varying levels of psychological distress, with stress being the most prominent, followed by anxiety and depression. Importantly, our research has revealed significant and positive correlations among these emotional responses, highlighting the complex nature of the challenges faced by pregnant individuals during a pandemic. These interconnections emphasize the necessity of multifaceted approaches to address their psychological well-being effectively. At the system level, our findings offer essential insights for decision-makers in healthcare, public health, and policy. Recognizing the significance of managing depression, anxiety, and stress among pregnant women, our study emphasizes the importance of implementing recommended strategies, guidelines, and health education programs. Such initiatives can play a pivotal role in enhancing the psychological resilience of this vulnerable group and mitigating potential maternal complications. In summary, our research serves as a practical guide for healthcare providers, policymakers, and stakeholders. It highlights the urgency of proactive interventions, support systems, and education to protect the well-being of pregnant women during health crises like the COVID-19 pandemic. By addressing these mental health challenges at different levels of decision-making, we can collectively work toward improving the overall quality of care and well-being of pregnant individuals in Jordan.

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Conflicts of interest

Nothing to declare.

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