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Coronavirus Pandemic and Mental Health During Pregnancy

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Abstract

Background: COVID-19 is an enveloped RNA virus, declared as a pandemic in 2020. The pandemic and the policies around it for controlling the infection have caused major psychological stress on the population, especially a high-risk group: the pregnant women. This study evaluates the anxiety and depression of pregnant women, in the first six months of COVID-19 pandemic in Iran.

Methods: In this cross-sectional study, all pregnant women, visiting the obstetrics clinic of Mahdiyeh hospital, were enrolled in this study. Among them, women with no prior psychological disorder or use anti-anxiety or antidepressant drug were included in the study and were asked to complete the hospital anxiety and depression scale (HADS) questionnaire. Also, the demographic information, obstetrics history and past medical history of each patient were collected. Data were analyzed using SPSS software, version 22, using descriptive statistics (mean and standard deviation), *t* test, chi-square and Bonferroni post hoc tests. Significant levels were considered at $P \leq 0.05$.

Results: Overall, 465 pregnant women with a mean ± SD age of 26.75 ± 5.71 years were included in the study. The mean ± SD HADS score of the women was 12.00 ± 6.09 and 240 (51.6%) of the women had abnormal HADS score. Among the demographic properties, a significant association was seen between gravidity and HADS score ($P < 0.05$).

Conclusion: COVID-19 can cause a considerable level of stress in women during their pregnancy, which can lead to adverse pregnancy outcomes. Among pregnant women, primigravida and multigravida (more than two previous pregnancy) ones were at higher risk of experiencing anxiety or depression.

Keywords: COVID-19; Anxiety; Depression; Hospital anxiety and depression scale.

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Introduction

Coronaviruses are a large family of enveloped RNA viruses that can cause respiratory illnesses ranging from the common cold to Middle Eastern respiratory syndrome (MERS) and severe acute respiratory syndrome (SARS). The MERS and SARS viruses can cause severe respiratory complications, with mortality rates of 35.5% and 9.6%, respectively.[1] In addition to the previous coronaviruses, the COVID-19 virus, diagnosed in the last days of December 2019, was declared as a pandemic on March 11th 2020, by the World Health Organization (WHO).[2]

To this date, COVID-19 has infected more than 84 million and killed more than 1.8 million people worldwide.[3] The virus is 85% homologous to bat severe acute respiratory syndrome (bat-SL-CoVZC45) and spreads through respiratory droplets and fecal secretions.[4,5] Despite its similar mortality to SARS, high virulence of the virus has made it a global public health issue.

In order to reduce the person-to-person contact, countries have considered quarantine policies encouraging people to reduce their parties, visits, and travels.[6] These restrictions have caused lots of psychological stress, from the fear of getting sick to the fear of losing a loved one, missing others, and emotional deprivation.[7-9] Anxiety disorder, obsessive behaviors, and even post-traumatic stress disorder are among the severe responses to the pandemic and the restrictive policies.[10]

A recent study in China has shown that anxiety disorder, depression symptoms, and sleep disturbance have occurred in 35.1%, 20.1%, and 18.2% of people, respectively.[11] Considering the fact that women are more susceptible to psychological complications,[12] the pandemic has had a major impact on women, especially pregnant women. Another study has shown that the depression symptoms were more prevalent among pregnant women, during the pandemic and most of them had self-harm thoughts.[13]

Pregnancy-induced anxiety is a well-known term that can not only diminish the experience of pregnancy days, but can also lead to adverse pregnancy outcomes or early elective cesarean section, which can put the women at risk

of future complications. The harm can be amplified with an external stressor, such as the COVID-19 pandemic.[14-16]

It is important to evaluate the exact effects of the pandemic and the policies related to that on maternal experience and pregnant women's emotions, as they can lead to significant mother and child public health issues. We aimed to evaluate anxiety and depression in pregnant women, during the initial phase of COVID-19 pandemic in Iran.

Materials and Methods

Study Design

This cross-sectional study was performed on pregnant women, visiting the obstetrics clinic of Mahdiyeh hospital. Every pregnant woman visiting Mahdiyeh Obstetrics Clinic from March 2020 to September 2020, meeting the inclusion criteria, was asked to complete the hospital anxiety and depression scale (HADS). Also, the demographic information, obstetrics history and past medical history of each patient were collected. HADS is a self-assessment questionnaire that is a reliable instrument for detecting states of anxiety and depression for hospital outpatient clinics. The HADS has seven items each for depression and anxiety subscales. Scoring for each item ranges from zero to three. A total subscale score of > 8 points out of a possible 21 denotes considerable symptoms of anxiety or depression. Furthermore, demographic information such as age, race, and history of disease were collected. All patients were enrolled in the study using convenience sampling.

The inclusion criteria were as follows:

- Agreeing with participating in the study
- Not having a history of psychological disorder
- Not using any anti-anxiety, anti-depression, or mood-modulator medicine

Statistical Analysis

Data were analyzed using SPSS software, version 22, using descriptive statistics (mean and standard deviation [SD]), *t* test, chi-square, and Bonferroni post hoc tests. Significant levels were considered at $P \leq 0.05$.

Results

Overall, 465 pregnant women with mean ± SD age of 26.75 ± 5.71 years were included in the study. 198 (42.6%) of the women were experiencing their first pregnancy. The demographic background of the patients is shown in Table 1. The prevalence of the underlying diseases is also shown in Figure 1. The body mass index (BMI) of 8.6%, 43.7%, 34.2%, 11.8%, and 1.7% of the women were less than 20, 20 to 25, 25 to 30, 30 to 35, and over 35 kg/m^2, respectively.

The mean ± SD HADS score of the women was 12.00 ± 6.09, and 111 (23.9%), 114 (24.5%), and 240 (51.6%) of the women had normal, borderline, and abnormal HADS score. A significant association was seen between gravidity and HADS score (Table 2); and women had the least anxiety in their second pregnancy, as shown in Figure 2.

No other significant difference was found in HADS score of mothers in the rest of the subgroup analyses.

Discussion

This is the first study, evaluating the anxiety and depression of pregnant women during COVID-19 pandemic in Iran. The pandemic is a state of stress and anxiety for most of the people, especially those in higher risk of facing psychological and emotional complications, such as pregnant women.

Table 1. The Demographics of the Women Included in This Study

Variable	
Age	26.75 (±5.71)
BMI	25.70 (±4.22)
First pregnancy	198 (42.6%)
Multiple pregnancy	26 (5.6%)
Overt diabetes	12 (2.6%)
Gestational diabetes	39 (8.4%)
Hypertension	10 (2.2%)
Cardiac disease	0 (0%)
Kidney disease	4 (0.9%)
IUGR	9 (1.9%)
Preeclampsia	9 (1.9%)
Asthma	1 (0.2%)
Hypothyroidism	79 (17.0%)
Infertility	15 (3.2%)

Table 2. The Mean HADS Score in Women With Different Gravidity

Gravidity	HADS score (Mean ± SD)	Mean df*	SE	95% CI	*P* Value
G1	12.18 ± 5.7	-	-	11.38-12.98	0.029
G2	10.91 ± 6.32	1.27	0.67	9.83-11.97	
G3	13.09 ± 6.22	-0.91	0.79	11.73-14.45	
G4	13.76 ± 6.42	-1.58	1.02	11.76-15.76	
G5	12.8 ± 5.63	-0.61	2.73	5.8-19.79	

CI, confidence interval; SE, standard error

* The mean differences from G1

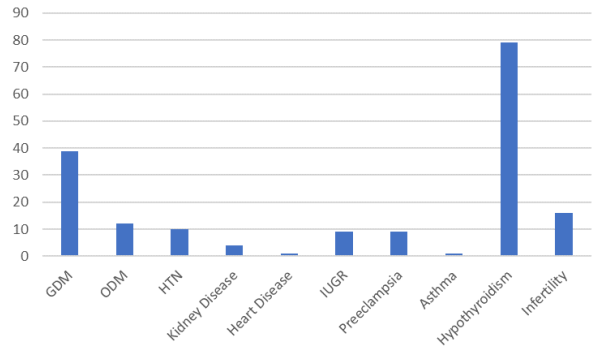

Figure 1. The Prevalence Of Underlying Diseases. GDM: gestational diabetes mellitus, ODM: overt gestational diabetes mellitus, HTN: hypertension, IUGR: intrauterine growth restriction.

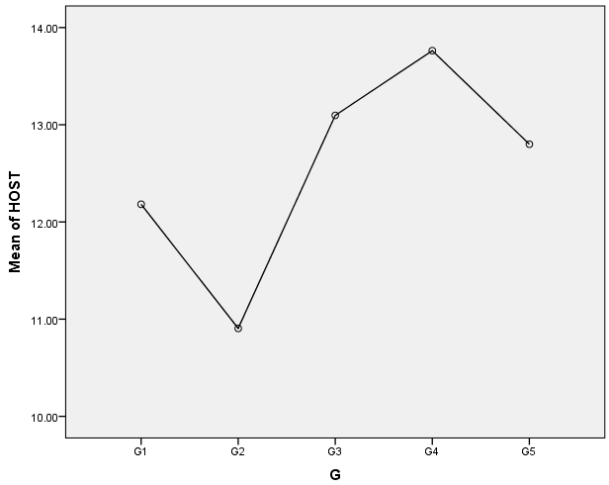

Figure 2. Mean HADS Score, by Gravidity.

The study showed that 51.6% of the pregnant women in Iran had abnormal HADS score, showing high anxiety and depression. Moreover, 24.5% of them had borderline results, which is still far from ideal. The stress and its outcomes are highly related to the national policies and the spike in media consumption. It has been shown that 25.8% of pregnant women in the United States have stopped their in-person prenatal visits and most of them have replaced it with video-calls or phone-calls with their doctor.[17]

Running out of food, losing a job and insecure financial state for the new child, and insecure child care were among the top sources of stress and anxiety in pregnant women in the United States.[17] Increased conflict between the house members and stress of getting COVID-19 infection during the labor process were other stressors, affecting the psychological health of the pregnant women.[11,17]

Similar results are also reported from the Canada cohorts, evaluating the mental health of pregnant women. In a study, 37% and 57% of pregnant women experienced depression and anxiety symptoms, respectively. Getting sick during pregnancy, fear of not receiving appropriate prenatal care, and social isolation were among the top reasons for this elevated anxiety and depression.[18]

In this study, one major factor was discovered as a significant predictor for higher HADS score: gravidity. Patients in their second gravid had lower HADS score in this study. There was an ascending trend in the HADS score and gravidity of the mother. However, a significant decline was evident in G2 mothers.

Additionally, patients with a history of kidney disease had lower anxiety and depression, in comparison with the rest of the women. There was no such difference in mothers with a history of hypertension, asthma, hypothyroidism, or even preeclampsia.

It has been shown that women with a history of previous losses have had even higher stress during the COVID-19 pandemic.[19] The exclusion of women with a history of psychological disorder or getting anti-anxiety of antidepressant drugs, can be a factor that reduces the effect of the underlying diseases in our study population. However, it should be noted that pandemic stress is a culture-based concept, being affected with a variety of factors such as media.[19] Higher social support and education have been reported as the protective factors of anxiety and depression in pregnancy, during the COVID-19 pandemic.[18,20]

This was an early study on anxiety and depression in pregnancy, during the COVID-19 pandemic. More predictive factors are needed to be identified and mental health support plans are needed to be implemented in the prenatal care plan of pregnant women during the pandemic.[21]

Conclusion

COVID-19 is a considerable stressor for women during their pregnancy, which can lead to adverse pregnancy outcomes. Among pregnant women, primigravida and multigravida (more than two previous pregnancy) mothers are at higher risk of experiencing anxiety or depression.

Acknowledgments

We would like to thank all the patients who participated in the current study.

Conflict of Interest Disclosures

The authors declare that they have no conflict of interests.

Ethical Statement

All methods used in the present study are based on the principles of Helsinki Human Studies. Patients' information will be kept completely confidential during and after the study. The methodology of the study was approved before by the Ethics Committee of Shahid Beheshti University of Medical Sciences with the ethics code of IR.SBMU.RETECH.REC.1399.672.

Informed Consent

The Patients gave individual written informed consent to clinical

data collection, analysis and the use of those data for research.

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