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Anxiety and depression during pregnancy in the era of COVID-19

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Abstract

Objectives: This study aimed to evaluate anxiety and depression in pregnant women during this global disease.
Methods: This was a cross-sectional study recruiting 120 pregnant women. The study was conducted at the outpatient clinic of a tertiary hospital. We recruited women attending for antenatal care. Anxiety was evaluated using an Arabic validated Kuwait University Anxiety Scale (KUAS). Depression was evaluated using a validated Arabic form of the Edinburgh Postnatal Depression Scale (EPDS).
Results: The study included 48 (40%) nulliparous and 72 (60%) multiparous women. The mean KUAS scores for nulliparous and multiparous women were 45.27±10.78 and 47.28±10.62. Both nulliparous and multiparous women had a fairly high possibility of depression**.** Fifty-three (44.2%) of them reported scores ≥ of 14. Ninety-three (77.5%) women thought that COVID-19 pandemic would affect their pregnancies. There was a significant association between the number of women reporting fear related to the COVID-19 pandemic and their KUAS and EPDS scores (p-value <0.001 each).
Conclusions: COVID-19 affected the mental health of pregnant women to a great extent. Care should be directed to measures that would decrease the impact of this pandemic on vulnerable populations.

Keywords: anxiety; COVID-19; depression; pregnancy.

Introduction

The novel emergent coronavirus resulted in a pandemic, drastically affecting almost the whole world. This crisis urged the globe to follow strict health care measures to control it [1]. The WHO declared that COVID-19 is a global pandemic on March 11, 2020 [2]. With the second wave, this virus resulted in a total of 103,989,900 confirmed cases and 2,260,259 deaths, according to the WHO records on February 4, 2021 [3]. COVID-19 spreads rapidly with close physical contact with [4]. Such outbreaks affect vulnerable people, like pregnant women and the fetus [5], and are associated with symptoms of mental illness and distress as reported previously [6, 7]. This may exist for a long time, even after disease control [8]. Depression and anxiety lead to an increased risk of preterm birth, delayed maternal-fetal bond, and delayed cognitive development in the newborn [9]. This should be kept in mind to provide adequate help while managing COVID-19 pandemic [10]. Few pregnant women and fetuses were affected with COVID-19 according to recent data, but evidence about vertical transmission is lacking [11].

With the existing enigma about COVID-19 in the literature and the available accurate and erroneous information on the Internet, psychological distress in vulnerable populations as pregnant women ensues. Besides, human efforts are directed towards disease treatment, with few studies evaluated its impact on the health care workers [12] and the general population [13]. However, pregnant women may suffer significantly due to the recommended restrictions, social distancing, isolation, inability to get regular antenatal care visits, and fear of feeding the baby. Accordingly, this study aimed to evaluate anxiety and depression among pregnant women in the COVID-19 pandemic era.

Patients and methods

This was a cross-sectional study recruiting 120 pregnant women according to predetermined sample size. It was conducted from November 1st to December 31st, 2020. The Institutional Ethical Review Board approved the study. The ladies were informed that data were confidential. The questionnaire was anonymous. The study's aim was explained to the participants, and eligible women signed informed written consent before enrollment in the study.

A questionnaire was constructed and filled by the participants attending antenatal care in the obstetrics and gynecology department's outpatient clinic. The questionnaire included three main sectors:

– Sector (one) inquired about the sociodemographic characteristics of the participants.

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- Sector (two) included questions for anxiety using Arabic validated Kuwait University Anxiety Scale (KUAS) [14]. The scale consisted of 20 brief statements answered on a four-point Likert scale, scored by 1: Rarely and 4: Always. The total scores can range from 20 to 80, with higher scores denoting higher anxiety [15].
- Sector three included questions about depression using Arabic validated form of the Edinburgh Postnatal Depression Scale (EPDS). This questionnaire is composed of 10 questions representing patients' feelings in the antecedent seven days. Each question has multiple choices for answering it. Questions 1, 2, and 4 are scored 0, 1, 2, or 3, with the top choice scored as zero while the last one as three. Questions 3, 5–10 are reverse scored with the top choice scored as three while the last is zero. The maximum score is 30. Scores were interpreted as follows: a score less than eight as depression was not likely, a score of 9–11 as depression was possible, a score of 12–13 as a fairly high possibility of depression, and a score ≥ of 14 as possible depression (positive screen). A positive score for question 10 meant that populations such as pregnant women are associated with risk of suicide. Each situation was dealt with according to the reproductive health program [16, 17].

Data collection was done by one of the study researchers, who had the interviews with each patient. Women were interviewed in a private room. The available researcher provided help and clarification for patients when needed. The average time for filling the questionnaire was 20–25 min.

Ethical approval

All procedures performed in the study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The study was conducted after approval of our research Ethics Committee.

Statistical analysis

Data were statistically described in terms of mean and standard deviation, frequencies (number of cases), and percentages when appropriate. p-Values of less than 0.05 were considered statistically significant. All statistical calculations were done using computer program SPSS (Statistical Package for the Social Science; SPSS Inc., Chicago, IL, USA) release 22 for Microsoft Windows. Chi-square test was used for categorical variables and (t) test for continuous variables with normally distributed data. Non-normally distributed data were tested using Fisher's exact for categorical variables and Mann–Whitney U tests for continuous variables.

Results

We recruited 48 (40%) nulliparous and 72 (60%) multiparous women. They were in the late second-early third trimester. The majority of them were highly educated but unemployed (Table 1).

The mean KUAS scores for nulliparous and multiparous women were 45.27±10.78 and 47.28±10.62. Both nulliparous and multiparous women had a fairly high possibility of depression (Table 2). Fifty-three (44.2%) of them reported scores ≥ of 14.

Ninety-three (77.5%) women thought that COVID-19 pandemic would affect their pregnancies. There was a significant association between the number of women reporting fear related to the COVID-19 pandemic and their KUAS and EPDS scores (p-value <0.001 each) (Table 3).

Twenty-eight (41.79%) and 35 (51.47%) multiparous women never experienced these anxiety and depression-related symptoms in previous pregnancies, respectively.

Discussion

Principal findings

This study was conducted to evaluate the effect of COVID-19 on the mental health of pregnant women. Pregnant women reported increased anxiety and depression scores relative to the scores reported before the pandemic. A great proportion of them reported fear related to the pandemic to affect their pregnancies. There was a significant association between their fear and their reported scores.

Clinical implications

The whole world is fighting against the new enemy, COVID-19 pandemic. The primary concern was to find out how to treat this emerging infection. Some concern was directed towards its psychological effects on health care workers with little directed towards at-risk populations like pregnant women.

The whole world reported 100,455,529 cases on January 28, 2021, and 163,761 cases were reported in Egypt [18]. The recruited population included nulliparous and

Table 1: Descriptive data of the studied population.

Variable		Nulliparous (48)	Multiparous (72)
Age, years (mean±SD)		25.08±4.08	30.53±4.49
Gestational age, months (mean±SD)		6.58±2.22	6.03±2.33
Education, n (%)	None	0 (0%)	1 (1.39%)
	Middle	12 (25%)	22 (30.56%)
	High	36 (75%)	49 (68.06%)
Occupation, n (%)	Housewife	32 (66.67%)	45 (62.5%)
	Employee	16 (33.33%)	27 (37.5%)

Table 2: Anxiety and depression among the studied population.

	Nulliparous	Multiparous
KUAS (mean±SD)	45.27±10.78	47.28±10.62
EPDS (mean±SD)	12.94±5.54	12.86±5.04

KUAS, Kuwait University Anxiety Scale; EDPS, Edinburgh Postnatal Depression Scale.

Table 3: Association between patients' fear from COVID-19 affecting their pregnancies and Kuwait University Anxiety Scale (KUAS) and Edinburgh Postnatal Depression Scale (EPDS) scores.

Fear of COVID-19 effect on pregnancy	No	Yes	Test	p-Value
KUAS score (mean±SD)	36.56±7.87	49.35±9.64	Mann–Whitney	**<0.001**
EDPS score (mean±SD)	5.74±2.25	14.97±3.8	t-Test	**<0.001**

KUAS, Kuwait University Anxiety Scale; EDPS, Edinburgh Postnatal Depression Scale. p-Value <0.05 shown in bold.

multiparous women. The great majority of them were highly educated and housewives.

The mean KUAS scores for nulliparous and multiparous women were 45.27±10.78 and 47.28±10.62. A previously published study reported a score of 13.376±9.558 using the Beck anxiety inventory representing higher anxiety levels than usual [19]. Anxiety was the most typical symptom reported by individuals affected by COVID-19 [20]. Additionally, another study reported similar scores using the self-rating anxiety scale and reported an incidence of 14.3%, which is higher than the general population [21]. These results were higher than before the pandemic scores [22, 23] and similar to first-line medical staff ones [24]. Pregnant women are more vulnerable to anxiety. Limited physical activity, fear of the event of labor, worry about the health of the newborn, and increased adrenal cortical hormones contribute significantly to mental illness and distress during pregnancy [25]. The presence of a pandemic caused the general levels of anxiety to rise unavoidably [26].

Both nulliparous and multiparous women had a fairly high possibility of depression. Fifty-three (44.2%) of them reported scores ≥ of 14. In previous research, 35.4% of the participants reported scores >13. Their total score was 11.138±6.236 [19], which was close to our reported results. About 10% of pregnant women experience a mental health disorder during pregnancy and the postpartum period. The prevalence differs according to the developmental state of the countries. Increased prevalence is reported in developing countries [27]. The current study reported higher rates than the commonly reported figures. This would be explained by the little information available about this pandemic, isolation, social distancing, irregular antenatal care visits, the unpredictable and uncertain outcome of the disease, financial stresses, increased home duties, and absence of an incentive to exercise [28, 29].

Ninety-three (77.5%) women thought that COVID-19 pandemic would affect their pregnancies. This correlated with Durankuş and Aksu's reported results, with 76.2% of their participants agreed that COVID-19 would affect their pregnancies. They also reported a significant association between the BAI and EPDS scores and the effect of COVID-19 on pregnancy [19]. Additionally, an earlier study reported a positive correlation between risk perception and anxiety scores [21]. This agreed with the results of the current study.

Research implications

Further study to evaluate the effect of COVID-19 on pregnancy outcomes. Larger community based studies are required.

Strength and limitations

This is the first study to evaluate the impact of COVID-19 on pregnant women in Egypt. We used Arabic validated questionnaires. The survey was conducted through direct contact with the participants. This avoided the drawbacks of online surveys as the inability to determine the number of the participants who refused to fill in the questionnaire, incorrect responses due to failure to read or interpret the questions, and failure to conduct random sampling [29]. However, this was a hospital-based study, which limits the generalizability of the results. A community-based study is warranted. The study did not conduct a long-term follow-up to determine pregnancy outcomes with COVID-19 pandemic. Possible causes of anxiety need to be addressed in further studies.

Conclusions

COVID-19 affected the mental health of pregnant women to a great extent. Care should be directed to measures that would decrease the impact of this pandemic on vulnerable populations.

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Author contributions: OT Taha: protocol/project development, data collection and management, manuscript writing/editing. RE Khamees: data collection and management, manuscript writing/editing. TYM Ali: data collection and analysis, manuscript writing and revision.

Competing interests: None.

Informed consent: Informed consent was obtained from all individuals included in this study.

Ethical approval: The Institutional Ethical Review Board approved the study.

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