Psychological distress associated with COVID-19 pandemic among pregnant women: A comparative study

Amany M. Ahmed,[1] Naglaa Mostafa,[2] Lawahez M. Dwedar[3]

(1&3) Lecturer, Woman's Health and Midwifery Nursing, Faculty of Nursing, Kafrelsheikh University, Egypt.
(2) Assistant Professor, Psychiatric and Mental Health Nursing, Faculty of Nursing, Cairo University, Egypt.
e-mail: 1monymosad@yahoo.com, 2naglaamostafa45@gmail.com, 3Drlawahezmabrouk@gmail.com

ABSTRACT

Background: The risk of anxiety and psychological difficulties is elevated during pregnancy and is probably exacerbated during the COVID-19 pandemic. **Aim:** This study aimed to explore psychological distress associated with COVID-19 pandemic among pregnant women as compared to non-pregnant women. **Methods:** A descriptive-comparative research design was adopted to achieve the stated aim. A convenience sample of 120 participants (60 pregnant and 60 non-pregnant women) was recruited. The study was conducted at an obstetric and gynecological outpatient clinic at Kafrelsheikh University hospital, Kafrelsheikh Governorate, Egypt. Data were collected using three tools: a structured interview schedule; the Depression, Anxiety, and Stress Scale (DASS); and the revised version of the Impact of Events Scale (IES-R). **Result:** The mean anxiety score for pregnant women was 5.75 ± 3.14 compared to 6.31 ± 2.22 for non-pregnant women. No statistically significant difference was noted between the anxiety scores reported by the two groups ($p = 0.257$). The mean depression score recorded for pregnant women was 6.73 ± 3.40 compared to 8.60 ± 2.31 for the non-pregnant group. The difference between the two groups was highly statistically significant ($p < 0.001$). The mean stress score registered for pregnant women was 8.45 ± 2.79 compared to 6.51 ± 3.1 for non-pregnant women, and the difference between the two groups was also highly statistically significant ($p < 0.001$). The mean score of the post-traumatic distress of pregnant women was 25.88 ± 11.93 compared to 14.55 ± 9.21 for the non-pregnant. The difference between the two groups was highly statistically significant ($p < 0.001$). **Conclusions:** Pregnant women expressed lower depression-related scores than non-pregnant women; however, the pregnant women registered higher scores relating to stress and post-traumatic distress than non-pregnant women. The study results recommended that obstetric and psychiatric nursing interventions are crucial for the mitigation of the psychological distress experienced by pregnant women during the ongoing pandemic. Such professional care can also prevent adverse health outcomes for pregnant women and their fetuses.

Keywords: psychological distress, pregnant women, COVID-19 pandemic

Introduction

Normal pregnancy can be critical or stressful for women because significant physical, mental, and social changes occur during this period **(Murray et al., 2019)**. Pregnancy is a physiologic process that represents an exciting time for expecting mothers; however, it is also a period of uncertainty. Some conditions may compromise maternal or fetal health and place the pregnant woman and her fetus at significantly increased risk for morbidity and/or mortality **(Murray et al., 2019; Medeirosa et al., 2016)**.

Environmental changes may cause a sense of insecurity and psychological distress in people. It is important to emphasize that the COVID-19 pandemic is both a public health crisis and a social, demographic, and economic emergency that exerts considerable adverse psychosocial effects on all individuals, including pregnant women **(Yonkers et al., 2017; Verbeek et al., 2015).** The unpredictability of the coronavirus pandemic probably adds further stress and may

cause people to become anxiety-prone. Anxiety is a feeling of worry, nervousness, or unease about events that bode uncertain outcomes; this affect can co-exist with, predispose, or cause depression **(Sinesi et al., 2019; Nath et al., 2018; Soto-Balbuena, 2018).**

Psychological distress is experienced in the form of anxiety, depression, and stress, and adverse life events become widespread in antenatal and postpartum periods when a disaster such as the COVID-19 virus outbreak occurs and the cause or progression of the disease and its outcomes are unclear **(Ren et al., 2020; Isgut et al., 2017).** Further, the implementation of rigorous safety measures such as seclusion, wearing masks, and social isolation may also increase the severity of the stress impact, especially in vulnerable populations such as pregnant women **(Saccone et al., 2020).**

Mothers have a strong desire to maintain a safe and stable environment for their children. However, the growing COVID-19 pandemic and the consequent financial uncertainty combined

with strict limitations on social interactions do not make for sound circumstances for reproduction. Depression commencing during the antenatal period often continues or worsens in the postpartum period **(Yonkers et al., 2017; Verbeek et al., 2015)**. Additionally, maternal psychological problems during pregnancy can exercise adverse effects on fetal development and can exert a long-term negative impact on the health of children **(Isgut et al., 2017)**.

Some studies conducted at the early stage of the COVID-19 pandemic reported increased incidence and severity of mental health problems. However, most such investigations were concerned about the psychological impact of the COVID-19 pandemic on the general population **(El-Zoghby et al., 2020; Ma et al., 2020; Qiu et al., 2020; Zhang and Ma, 2020)**.

Significance of the study

Mental health problems experienced by pregnant women are recognized to have both short and long-term consequences for the women and their children. In particular, anxiety during pregnancy has an adverse effect on pregnancy such as increased risk of preeclampsia, depression, nausea, and vomiting **(Simo et al., 2019)**. Moreover, maternal anxiety, depression, and insomnia may be associated with the elevated threat of miscarriage and preterm labor **(Grigoriadis et al., 2018; Li et al., 2017; Accortt et al., 2015)**. Further, anxiety and stress experienced by women during their pregnancy are also predictive of mental and physical health problems of children and can cause problems such as lower birth weight, restricted growth, and a lower APGAR score **(Simo et al., 2019; Madigan et al., 2018)**.

Pregnant women are recognized as a vulnerable group because their immunity is compromised and their physiological functions is altered. In turn, these changes cause them to become more susceptible to infectious diseases **(Dashraath et al., 2020)**. Pregnant women may also experience psychological effects such as stress, anxiety, and depression associated with some adverse obstetrical conditions. Infectious disease outbreaks such as the current COVID-19 outbreak may exacerbate these consequences for pregnant women. However, the psychological impact of the COVID-19 pandemic on pregnant women has not been extensively studied. Scant

and scattered nursing-related studies have been conducted in Egypt to explore the COVID-19 pandemic-associated psychological distress in pregnant women.

Aim of the Study

This study aimed to explore psychological distress associated with COVID-19 pandemic among pregnant women as compared to non-pregnant women.

Operational definitions

Psychological distress: In this study, psychological distress was defined as any form of depression, anxiety, stress, or post-traumatic stress disorder (PTSD) resulting from the COVID-19 pandemic. It was measured through the Depression, Anxiety, and Stress Scale (DASS) and the revised version of the Impact of Events Scale (IES-R)

Research Questions

This study probed the following research questions:

Q1- Is there a difference between the levels of anxiety experienced by pregnant and non-pregnant women?

Q2- Is there a difference between the levels of depression experienced by pregnant and non-pregnant women?

Q3- Is there a difference between the levels of stress experienced by pregnant and non-pregnant women?

Q4- Is there a difference between the levels of post-traumatic distress experienced by pregnant and non-pregnant women?

Subjects and Methods

Research design

A descriptive-comparative research design was selected for the study. This research methodology is intended to describe and interpret the current state of individuals, settings, or events as it exists naturally and allows the comparison of two or more groups of subjects in relation to the phenomenon of interest **(Polit & Beck, 2010)**.

Setting

This study was conducted at an obstetric and gynecological outpatient clinic in

Kafrelsheikh University hospital. The clinic contains two examination bed and an ultrasound machine and offers obstetric and gynecological care for about 20 to 30 patients per day.

Sample

A convenience sample of 120 participants (60 pregnant women and 60 non-pregnant women) was recruited for this study. The sample size was calculated using G-power version 3.3.1 power of ($\beta = 1 - 0.95$) with a significance level of .05 (Two tails) and a high effect size of (0.5).

Inclusion criteria for both groups: Participants were required to be female and aged between 18 and less than 40 years.

Inclusion criteria for the group of pregnant women: Participants were required to be pregnant at any trimester and not diagnosed with any high-risk conditions.

Exclusion criteria for both groups: Participants with any history of psychiatric disorder and women who had already contracted COVID-19 were excluded from the study.

Tools

Data were collected using three tools: a structured interview schedule, DASS, and the revised version of the IES-R.

1.Structured Interview Schedule

It was developed by the investigators. It divided into four parts. Part I concerned the collection of sociodemographic data such as age, residence, educational status, occupation, family type, number of family members, and income. Part II gathered obstetric data from the pregnant women, including information about their para, gravida, and gestational age. Part III required participants to offer yes or no answers (1 = no and 2 = yes) to eight statements related to common worries or stressors caused by COVID-19. Part IV incorporated seven items about the COVID-19 related knowledge required by pregnant women. Again, the participants could only respond yes or no (1 = no and 2 = yes).

2- Depression, Anxiety, and Stress Scale (DASS-21, Lovibond, and Lovibond, 1995)

This self-report questionnaire comprises 21 items, seven for each subscale of depression, anxiety, and stress. Participants are asked to score every item on a scale from 0 (did not apply to me at all) to 3 (applied to me very much). Scores are computed by aggregating items per subscale and multiplying them by a factor of two. The sum scores for the overall DASS-total scale thus range between 0 and 120, and tallies for each subscale can span 0 to 42. Scores ≥ 60 (for DASS-total) and ≥ 21 (for each subscale) are labeled as high or severe.

3- The Impact of Events Scale Revised (IES-R) (Weiss & Marmar, 1996)

The IES-R is a revised version of the original 15-item IES (**Horowitz, Wilner, & Alvarez, 1979).** IES-R is a 22-item self-reporting measure for the assessment of subjective distress caused by traumatic events. It adds seven items related to the hyperarousal symptoms of post-traumatic stress disorder (PTSD) to the original IES. Respondents are asked to identify a specific stressful life event and to indicate how distressed or bothered they were over the past seven days by each "difficulty" listed. Items are rated on a 5-point scale ranging from 0 ("not at all") to 4 ("extremely"). The IES-R yields a total score ranging from 0 to 88. The cut-off score of 33 and above indicates that the respondent is experiencing PTSD.

Tool validity

Tool constructed by the researchers, structured interview schedule, was submitted for the testing of its content validity to five scholastic nursing specialists in the domain of woman's health and midwifery and psychiatric health nursing. The instrument was validated for clarity, relevance, and completeness of contents. The requisite modifications were performed based on the recommendations of the specialists.

Tool reliability

The reliability of the instruments used for the study was tested using Cronbach's alpha coefficient test. Cronbach's alpha for the structured interview schedule was valued at 0.71 and thus evinced a positive correlation between the tool's items. The alpha scale reliability for DASS ranged from 0.86 to 0.91, and the alpha scale reliability was computed at 0.72 for IES-R.

Ethical Considerations

Written approval to conduct the study was obtained from the directors of Kafrelsheikh

University Hospitals. All participants were informed that participation in the current study was voluntary and that the collected data would only be used for research purposes. Participants were assured of anonymity and confidentiality and were protected by the allocation of a code number for each response. Participants were also informed that they could withdraw from the study at any time without having to offer a rationale. Informed consent was obtained from all participants who agreed to participate in the study.

Pilot Study

A pilot study was conducted to test the reliability and validity of the study tools and the clarity of the questions and to estimate the time needed to complete the instruments. A total of 10% of the sample was recruited for the pilot study. All subjects included in the pilot study met the inclusion criteria set for the study. The pilot study revealed that the tools did not require modification. The subjects included in the pilot study were excluded from the main study sample.

Procedure

- The data were collected over two months, from the beginning of June 2020 to the end of July 2020.
- Related literature encompassing varied aspects of the problem was reviewed through available textbooks, articles, periodicals, journals, and the Internet to familiarize the researchers with the research problem and develop the study tools.
- The researchers used and followed the back translation procedure to verify the translation of the tool: (1) the researchers translated the English language instruments into Arabic, (2) the English formats were sent to bilingual experts for further validation of the translation of the Arabic format, (3) the resulting versions were translated back into the original language by other bilingual experts and, (4) minor discrepancies were discovered in the content and necessary modifications were accomplished.
- Official permission was obtained from the directors of Kafrelsheikh University Hospitals to conduct the study.
- The researchers met with the subjects in the outpatient clinics of the selected hospital, explained the study objective, assured them of confidentiality and anonymity, and finally invited them to participate in the study.
- Each participant was interviewed individually, in a semi-structured interview, for about 20 to 30 minutes; the questionnaires were read and explained, and the researchers recorded the choices indicated by the participants.

Data Management and Analysis

The data were analyzed using IBM Statistical Package for Social Science version 20. Numerical data were expressed as mean ± SD and range. Qualitative data were expressed as frequency and percentage. A chi-square test was used to accomplish the comparison between two variables of the qualitative data. Comparisons between quantitative variables were performed using an independent sample t-test. Probability (p-value) less than 0.05 was considered significant, and less than 0.001 was considered highly significant.

Results

Table (1) reveals that 66.67% of the pregnant women were aged between 30 and 35 years compared to 86.67% of the non-pregnant women. The table also added that, 76.7% of pregnant women were from rural areas compared to 71.7% of non- pregnant women. Nearly two-thirds (63.3%) of the pregnant women were secondary educated compared to 11.7% of the non-pregnant women. Concerning occupation, 95.0% of pregnant women were house wives as compared to 91.7% of non-pregnant women.

Table (1) also elucidates that three-fifths (56.7%) of the pregnant women lived in nuclear families in comparison to 70.0% of the non-pregnant women. More than two-thirds (66.7%) of the pregnant women and 80.0% of non-pregnant women lived in families comprising 2–5 members. The majority (93.3%) of the pregnant women expressed satisfaction with the family income compared to 88.3% of the non-pregnant women. It is obvious from table (1) that no statistically significant differences can be observed between the two groups with respect to their sociodemographic characteristics (p > 0.05).

Table (2) displays the obstetric profile of the pregnant women group. It clarifies that more than two-fifths of this cohort (41.7%) had delivered one child (para 1), and more than two-fifths of

them (41.7%) had undergone two pregnancies (gravida 2). Almost three-quarters of the group (71.7%) was in the 3rd trimester of pregnancy.

Table (3) presents the results of anxiety levels reported by pregnant and non-pregnant women. The data revealed that 85.0% of pregnant women expressed no anxiety, and 11.7% asserted moderate levels of anxiety in comparison to 91.67% and 3.33% of non-pregnant women, respectively. The mean score of anxiety in the pregnant women group was computed at 6.31 ± 2.22 compared to 5.75 ± 3.14 for the non-pregnant women. Thus, no statistically significant difference could be observed between the two groups in relation to anxiety scores when t = 1.139 at p = 0.257.

Table (4) exhibits that 81.0% of pregnant women disclosed no depression, and 8.3% reported mild depression. In contrast, 71.7% of the non-pregnant women registered the absence of depression, and 25.0% asserted mild depression. The table also shows that the mean score of depression among the pregnant women group was 6.73 ± 3.40 compared to 8.60 ± 2.31 for the non-pregnant group. A highly statistically significant difference could be discerned between the depression scores of the two groups when t = 3.491 at p < 0.001.

Table (5) presents the outcomes for stress levels and reveals that 75.0% and 16.66% of pregnant women group respectively reported mild and severe stress levels in comparison to 95.0% and 1.7% of the non-pregnant women. The mean score of stress among pregnant women was 8.45 ± 2.79, and the mean stress for non-pregnant

women was 6.51 ± 3.1. The difference between both groups was highly statistically significant (t = 3.564 at p < 0.001).

As observed in table (6) 23.3% of the pregnant women exhibited a severe level of post-traumatic distress, compared to only 5.0% of the non-pregnant women. The mean score of post-traumatic distress were 25.88 ± 11.93 for the pregnant women group and 14.55 ± 9.21 for the non-pregnant women group. Thus, a highly statistically significant difference was found between the two groups with respect to the post-traumatic distress score when t = 5.824 at p < 0.001.

In terms of common worries related to COVID-19, Table 7 demonstrates that the inability to work during the epidemic, economic pressures, changes in the location of the follow-up hospital, and changes in activity were the most common worries reported by pregnant women, respectively accounted 93.3%, 78.3%, 71.7%, and 63.3% of the pregnant women. However, the non-pregnant women expressed the possibility of being infected with the virus (100.0%), the availability and adequacy of protective supplies (85.0%), and the inability to work during the epidemic (85.0%) as their most common worries related to COVID-19.

Table (8) evinces that pregnant women asserted the need for knowledge about intra-uterine COVID-19 transmission, woman's susceptibility to COVID-19, and the termination of pregnancy if they were infected with COVID-19 (100.0%, 96.7%, and 80.0%, respectively).

Table 1: Frequency and percentage distribution of pregnant and non-pregnant women according to their sociodemographic characteristics (n = 120)

Items	Pregnant women (n=60)		Non-pregnant women (n=60)		X^2	p-value
	No	%	No	%		
Age in years					3.812	0.221
18-	10	16.66	3	5.0		
26-	10	16,66	5	8.33		
30- 35	40	66.67	52	86.67		
Mean ± SD	26.23 ± 4.25		28.40 ± 4.60			
Place of residence						
Urban	14	23.3	17	28.3	0.391	0.532
Rural	46	76.7	43	71.7		
Education						
Con not read and write	4	6.7	1	1.7	0.745	0.511
Primary education	1	1.7	6	10.0		
Preparatory education	3	5.0	4	6.7		
Secondary education	38	63.3	18	30.0		
University education	14	23.3	31	51.6		
Occupation						
House wife	57	95.0	55	91.7	0.536	0.442
Working	3	5.0	5	8.3		
Income						
Satisfactory income	56	93.3	53	88.3	0.931	0.343
Un-satisfactory income	4	6.7	7	11.7		
Type of family						
Nuclear	34	56.7	42	70.0	2.297	0.130
Extended	26	43.3	18	30.0		
Number of family members						
2-	40	66.7	48	80.0	3.794	0.230
6-	18	30.0	9	15.0		
More than 10	2	3.3	3	5.0		

Table 2: Frequency and percentage distribution of pregnant women according to their obstetric profile (n = 60)

Items	No	%
Para		
zero	11	18.3
Once	25	41.7
Twice	20	33.3
Three times	4	6.7
Gravida		
Once	11	18.3
Twice	25	41.7
Three times	20	33.3
Four times	4	6.7
Gestational age		
1st trimester	1	1.7
2nd trimester	16	26.7
3rd trimester	43	71.7

Table 3: Differences in anxiety status between pregnant and non-pregnant women (n = 120)

Items	Pregnant women (n = 60)		Non-pregnant women (n = 60)		t-test	p-value
	No	%	No	%		
No anxiety	51	85.0	55	91.67		
Mild	2	3.33	3	5.0		
Moderate	7	11.7	2	3.33	1.139	0.257
Severe	0	0.0	0	0.0		
Mean ± SD	6.31 ± 2.22		5.75 ± 3.14			

Table 4: Differences in depression levels between pregnant and non-pregnant women (n = 120)

Items	Pregnant women (n = 60)		Non-pregnant women (n = 60)		t-test	p-value
	No	%	No	%		
No depression	49	81.7	43	71.7		
Mild	5	8.3	15	25.0		
Moderate	6	10.0	2	3.3	3.491*	0.001
Severe	0	0.0	0	0.0		
Mean ± SD	6.73 ± 3.40		8.60 ± 2.31			

*highly significant at p < 0.01

Table 5: Differences in stress levels between pregnant and non-pregnant women (n = 120)

Items	Pregnant women (n = 60)		Non-pregnant women (n = 60)		t-test	p-value
	No	%	No	%		
No stress	0	0.0	0	0.0		
Mild	45	75	57	95.0		
Moderate	5	8.3	2	3.3	3.564*	0.001
Severe	10	16.66	1	1.7		
Mean ± SD	8.45 ± 2.79		6.51 ± 3.1			

*highly significant at p < 0.01

Table 6: Difference between pregnant women group and non-pregnant women group in relation to the experiencing of post-traumatic distress (n = 120)

Items	Pregnant women (n = 60)		Non-pregnant women (n = 60)		t-test	p-value
	No	%	No	%		
No features	29	48.3	55	91.7		
Mild	9	15.0	2	3.3		
Moderate	8	13.3	0	0.0	5.824*	0.001
Severe	14	23.3	3	5.0		
Mean ± SD	25.88 ± 11.93		14.55 ± 9.21			

*highly significant at p < 0.01

Table 7: Frequency distribution of common worries during COVID-19 pandemic among pregnant women and non-pregnant women (n = 120)

Worries	Pregnant women (n = 60)				Non-pregnant women (n = 60)			
	Yes		No		Yes		No	
	No.	%	No.	%	No.	%	No.	%
Healthy and smooth fetus delivery	20	33.3	40	66.7	-	-	-	-
Distance from follow-up location	38	63.3	22	36.7	-	-	-	-
Change of location of follow-up hospital in case it is designated a seclusion hospital for COVID-19	43	71.7	17	28.3	-	-	-	-
Changes in activity	38	63.3	22	36.7	20	33.3	40	66.7
Possibility of being infected	1	1.7	59	98.3	60	100.0	0	0.0
Possibility of a family member being infected with virus	1	1.7	59	98.3	60	100.0	0	0.0
Economic pressures	47	78.3	13	21.7	5	8.3	55	91.7
Inability to work during the epidemic	56	93.3	4	6.7	51	85.0	9	15.0
Availability and adequacy of protective supplies	31	51.7	29	48.3	51	85.0	9	15.0

* Responses are not mutually exclusive

Table 8: Frequency distribution of COVID-19-related knowledge needs of pregnant women (n = 60)

Knowledge needs related to COVID-19	Yes		No	
	No	%	No	%
Self-protection during pregnancy	29	48.3	31	51.7
Susceptibility of women to COVID-19	58	96.7	2	3.3
Intra-uterine transmission of COVID-19	60	100.0	0	0.0
Termination of pregnancy if infected with COVID-19	48	80.0	12	20.0
Psychological adjustment during pregnancy	34	56.7	26	43.3
Need for psychological counseling	22	36.7	38	63.3

* needs are not mutually exclusive

Discussion

This study aimed to explore psychological distress associated with COVID-19 pandemic among pregnant women as compared to non-pregnant women. The following research questions were formulated and tested to achieve the above goals: Q1- Is there a difference between the levels of anxiety experienced by pregnant and non-pregnant women?;Q2- Is there a difference between the levels of depression experienced by pregnant and non-pregnant women?; Q3- Is there a difference between the levels of stress experienced by pregnant and non-pregnant women?; Q4- Is there a difference between the levels of post-traumatic distress experienced by pregnant and non-pregnant women? Therefore, discussion of the findings will be presented sequentially with respect to each research question.

Regarding anxiety level, no statistically significant difference could be determined between both groups as noted above in the results section (p = 0.257). The current study revealed that the mean score of anxiety among pregnant women was 6.31±2.22 as compared to 5.75±3.14 among non-pregnant women. **Parra-Saavedra et al. (2020)** studied the psychological effects of Covid-19 in pregnant women and reported a higher percentage than this study, with half (50.4%) of their sample reporting symptoms of anxiety. Another study performed by **Saccone et al. (2020)** revealed that the mean score of anxiety in pregnant women was 45.2_14.6, with an overall incidence of anxiety in two-thirds (68.0%) of the sample.

Furthermore, **Lebel et al. (2020)** assessed the symptoms of anxiety and depression among pregnant women during the COVID-19 pandemic and reported that more than half of their sample (57.0%) reported anxiety symptoms. The differences noted between the

findings of the current study and the outcomes of other studies could be attributed to the different cultural contexts of the subjects. The differences could also be explained by the lack of health literacy of the studied sample concerning the prevalence and consequences of COVID-19. The results of the current study could further reflect the reduced incidence of the COVID-19 infection in Egypt compared to other countries.

Concerning depression, the current study revealed that the mean score of depression among non-pregnant women was higher than the reports for pregnant women, and the difference between the two groups was highly statistically significant ($p < 0.001$). The current study also declared that, less than one-tenth (8.3%) of pregnant women group express mild level of depression as compared to one-fourth (25.0%) of non-pregnant women group. This finding may be attributed to the state of pregnancy, which adds meaning to life and becomes a motive for a pregnant woman to fight depressive feelings and moods in order to protect herself and her fetus through a strict commitment to health precautions.

Chen et al. (2020) investigated the mental health status of pregnant women during the COVID-19 outbreak. Their findings contradicted the present study's results. They reported that more than one-fourth (28.62%) of the pregnant women were afflicted with depression, and the difference between the depression score of pregnant women vis-à-vis other adults was statistically significant ($p < 0.05$). Similarly, the study conducted by **Parra-Saavedra et al. (2020)** also reported depressive symptoms in one-fourth (25.0%) of the sample.

Regarding level of stress, the current study's findings disclosed that the level of stress experienced by pregnant women was higher than the that felt by non-pregnant women. The difference between the two groups was highly statistically significant ($p < 0.001$). The elevated stress levels among pregnant women may be explained by the lack of social and physical activity resulting from pandemic control measures, financial trouble, relationship difficulties, and the fear of not receiving the necessary prenatal care.

Post-traumatic distress was measured through the IES-R scale in the present study, and the results evinced that almost one-fourth of the pregnant women experienced severe levels of post-traumatic distress, while only 5.0% of the non-pregnant women reported this extent of the measure. The mean score of post-traumatic distress among pregnant women was 25.88 against 14.55 of the non-pregnant women, and the difference between both groups was highly statistically significant ($p > 0.001$). These findings highlight the urgent need to reduce psychological distress during pregnancy through means such as psychological counseling by health care providers and the promotion of perceived social support offered by significant personnel when pregnant women take on new roles and responsibilities. These outcomes are congruent with the declarations made by **Saccone et al. (2020)** that the COVID-19 outbreak exerted a moderate psychological impact on pregnant women. However, they reported a higher level of psychological impact, in which the mean IES-R score was 36.9, and more than half of the respondents (53.0%) ranking their psychological impact as severe.

Regarding common worries experienced by pregnant women, the current study findings elucidate that more than three-fifths (63.3%) of the them were worried about the distance from the follow-up location, and around three-fourths (71.7%) were concerned about changing the follow-up hospital if it was designated a seclusion hospital for COVID-19 patients. These findings illuminate that pregnant women are more concerned about the health of their fetuses and thus need more frequent visits to antenatal clinics for reassurance, especially in late pregnancy. Notably, almost three-fourths (71.7%) of the cohort of pregnant women in the present study were in the third trimester of their pregnancy.

In addition, more than three-fourths (78.3%) of the pregnant women reported economic pressures, and the majority (93.3%) asserted the inability to work during pregnancy as common worries. This is a logic finding because pregnant women need increased financial stability to appropriately nurture and to take care for herself and her child. Further, the fear of being infected could hinder pregnant

women from work during pregnancy. In alignment with this idea, the majority of pregnant women (98.3%) were worried about the possibility of being infected or the likelihood of a family member becoming afflicted with the virus.

However, the study conducted by **Chen et al. (2020)** reported different percentages. According to their estimates, less than three-fourths (72.6%) of the pregnant women were worried whether their children would be born smoothly and in good health; less than one-fifth (18.6%) were concerned about the possibility of being infected with the virus; and more than one-third (35.0%) were apprehensive about the economic pressures they would face after childbirth and about their inability to combine work with their pregnancy.

Conclusion

The current study concluded that in spite of their pregnancy, pregnant women registered lower mean scores for the expression of depression than non-pregnant women. However, pregnant women revealed a higher mean score for stress and post-traumatic distress than non-pregnant women. In addition, pregnant women expressed that economic pressures, combined with their inability to work during the pregnancy, were major worries related to COVID-19. They further declared a higher need for psychological counseling, intra-uterine transmission and woman's susceptibility to Covid-19.

Recommendations

The following recommendations are made based on the findings of this study:

- Screening for perinatal stress and anxiety is advised and should be emphasized during the ongoing pandemic.
- Under pandemic circumstances where social distancing and isolation is mandatory, psychological hotlines and online counseling represent safe and feasible alternatives for the management of perinatal stress.
- The specific worries and concerns experienced by pregnant women must be acknowledged and appropriately addressed during prenatal care.

- Obstetric and psychiatric nursing intervention is crucial for the reduction of psychological distress experienced by pregnant women and for the prevention of adverse health outcomes for pregnant women and their fetuses.
- Further studies must be conducted to examine the long-term impact of pandemic-related mental health problems experienced by pregnant women on pregnancy outcomes.

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