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Assessing the level of Coronavirus Disease Anxiety and its related factors in third-trimester pregnant women referring to the health centers of Isfahan during the pandemic

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Abstract

Background: Pregnancy as a sensitive period of a woman's life can be affected by various psychological factors. Covid-19 pandemic is a new phenomenon; and there is limited information about its psychological consequences such as the Coronavirus disease anxiety in these women. So, the present study aimed to determine the level of Covid-19 anxiety in the third trimester of pregnancy and its related factors.

Methods: In this descriptive-analytical study, 215 pregnant women with 28-33 weeks of gestational age were studied. The samples were selected from the health centers and hospitals in Isfahan, Iran, by cluster sampling. A questionnaire of Demographic, fertility and Coronavirus-related factors as well as the Corona Disease Anxiety Scale (including psychological and physical components) were completed by the mothers in person. The data was analyzed by SPSS-24 software using One-way analysis of variance, independent t-test, Kruskal-Wallis, Mann-Whitney, Pearson and Spearman correlation tests.

Result: The results showed that the mean score of Corona disease anxiety in pregnant women was 11.45±7.56. Anxiety was reported to be low in 62.8% of pregnant women, moderate in 32.6% and high in 4.6%. The mean score of the psychological component (8.40± 4.78) was higher than the score of the physical component (3.06± 3.59). Working women, women with client-related occupations, and those having a working husband had lower anxiety scores. Factors such as death of family members due to Coronavirus disease and higher gestational age were associated with a significant increase in Corona anxiety score.

Conclusion: Considering that death of a family member due to Coronavirus disease and higher gestational age are associated with higher Coronavirus disease anxiety, the results of this study can be used to identify high-risk pregnant women and suggest early psychological interventions for preventing pregnancy anxiety complications.

Key Words: Anxiety, Covid-19, Pregnancy.

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1- INTRODUCTION

Coronaviruses are a family of viruses that can cause a wide range of illnesses from colds to acute respiratory symptoms and can cause death due to pneumonia and respiratory problems (1). On January 19, 2020, the World Health Organization registered a series of unexplained cases of pneumonia reported in Wuhan, China, as a Coronavirus and described it as a pandemic disease (2). According to the report of the World Health Organization, from December 31, 2019 to December 2, 2021, there were 263,563,622 people contaminated with Coronavirus worldwide, about 5 million of whom died, and in Iran the incidence of this infection was 6,125,596 during the same period of time (3).

Epidemic and emerging diseases challenge the individuals' psychological resilience and can lead to increased levels of anxiety (4). Previous experiences with viral pandemics, including influenza in 2009 and Acute Respiratory Distress Syndrome (5), have raised concerns that pregnant women may be at higher risks for Covid-19-related infection and mortality; because pregnant women are thought to have relatively weak immunity (6). and according to this theory, they can have more chances of getting an infection (7). Acute Respiratory Distress Syndrome (ARDS) is one of the causes of respiratory failure in patients with symptoms such as acute hypoxemia, noncardiogenic pulmonary edema, decreased lung adaptation (increased lung stiffness) and need of positive pressure ventilation (8). There is incomplete and limited information on the incidence of Coronavirus in pregnant women and its short and long term consequences for the mother and fetus (9, 10). Furthermore, the reported cases of Covid-19 virus infection during pregnancy due to the small sample size, have made it difficult to draw conclusions about this disease and the results of existing studies are contradictory (11-13). However, studies show that pregnant women with pneumonia of Covid-19 have an increased risk of pregnancy complications such as preterm delivery, premature rupture of the membranes, preeclampsia, and the need for cesarean section (1, 11, 14). Thus, the anxiety caused by these complications of Covid-19 in pregnancy is probably a source of stress, as it has a direct impact on the physical and psychological condition of mothers during pregnancy. Also, it can affect many aspects of mother health and family functioning (15). Since the psychological and physical changes of pregnancy put women at risk for anxiety and stress, the Covid-19 anxiety is a serious issue of concern.

Complications have been added to the common concerns of pregnant women (6). Before the Coronavirus epidemic, the prevalence of anxiety disorder during pregnancy was reported to be 10% and 25%, respectively, in developed and developing countries (16). Anxiety during pregnancy is a risk factor for maternal psychological health problems such as the increased risk of postpartum depression, mother-to-child attachment disorder, complications of labor such as preterm delivery and fetal growth restriction (4).

Although data on its psychological impact on pregnant women are limited, most studies show that it has a moderate to severe effect (4, 17-19). Due to the lack of consistent and reliable information about the impact of the disease on pregnancy, pregnant women are often worried and perceive their condition negatively during the outbreak. It was also shown that women in the first trimester of pregnancy are more susceptible to anxiety and high emotional distress compared to other pregnant women in more advanced pregnancy stages (17). The results of one study revealed that the level of education can be a risk factor for high anxiety in

pregnant women (4). And some studies have shown a higher level of Corona anxiety in women with higher education and age at pregnancy and older gestational ages (20). According to this, it seems necessary to conduct further studies on the incidence of psychological disorders associated with Covid-19 epidemic in pregnant women; so, the present study was conducted to determine the level of Coronavirus disease anxiety and its related factors in the third trimester of pregnancy.

2- Material and methods

The present study is a descriptive-analytical study that was conducted in March to June 2021. The study population included all pregnant women referring to health centers and hospitals in Isfahan. To select the sample, first, the Isfahan metropolis was divided into 4 geographical areas, and from each area, a comprehensive health center and a hospital with the most referrals were selected. A total of 215 pregnant women were selected from the selected centers through cluster sampling, based on the inclusion criteria. The inclusion criteria encompassed the pregnant women in their third trimester with single fetus, gestational age of 28-33 weeks, no chronic disease and pregnancy complications, no history of known psychological diseases, and no sudden and serious stress in the current pregnancy and willing to participate in the study.

After obtaining conscious consent for participation in the study and ensuring the participants that all information was kept confidential, A questionnaire of the demographic, fertility, and Coronavirus-related factors and the Corona Disease Anxiety Scale were completed by the mothers in person. Demographic, fertility and Coronavirus-related factors questionnaire including: age, level of education , occupation of the pregnant woman and her husband, place of living, number of pregnancies, number of deliveries, number of live children, number of abortions and having children under 2 years of age, the pregnant woman's and her husband's Loss of job due to the Coronavirus epidemy, having a job in contact with clients, Coronavirus disease and death of family members due to Coronavirus disease, adherence to Coronavirus prevention protocols by pregnant women and her family, presence of medical staff in the family and access to cyberspace.

2-1. Corona Disease Anxiety Scale (CDAS)

Was used to measure Corona anxiety (21). This scale has 18 items and 2 components. Items 1-9 measure the psychological components and items 10-18 measure the physical components. This scale is scored in the 4-point Likert scale (never = 0, sometimes = 1, most of the time = 2 and always = 3) and the highest and lowest scores in this questionnaire are between 0-54. High scores in this scale indicate a higher level of anxiety. The reliability of this scale was obtained using Cronbach's alpha method and internal consistency was 0.87, 0.86 and 0.91 for physical, psychological and whole anxiety, respectively (21). The reliability of this scale has been confirmed in other studies (22, 23). It should be noted that an attempt was made to complete the questionnaires in a quiet and private atmosphere and in compliance with health protocols.

2-2. Ethical consideration

The research was approved by the Ethics committee of Isfahan University of Medical sciences with the number IR.MUI.RESEARCH.REC.1399.718.
Moreover, written informed consent was obtained from the participants after explaining goals of the research and they had the right of voluntary withdrawal of the study at any time.

2-3. Data analysis

The data was analyzed by SPSS-24 software using One-way analysis of variance, independent t-test, Kruskal-Wallis, Mann-Whitney, Pearson and Spearman correlation tests. The significance level of all tests was set at $P<0.05$.

3- RESULTS

In this study, 215 pregnant women in 28 to 34 weeks of pregnancy were studied. The mean gestational age of women was 31.07±2.13 weeks. The Mean±SD age of women was 25.47±5.44 years and the Mean±SD age of their husbands was 33.04 ±5.02 years. The most frequent level of education was bachelors' degree (51.6%) in women and diploma (44.7%) in husbands. Almost 88% of women had under 2-year-old children, 88.8% were living in cities and 91.2% had access to cyberspace. In the field of employment 15.3% of women were employed and the most frequent occupation of the husbands was self-employment (49.3%). About 10.7% of women had jobs with relations to the clients. Regarding the impact of the pandemy on occupation, 3.3% of women and 15.3% of the husbands had lost their jobs during the Covid-19 pandemy. The pregnant women believed that the health protocols are followed at a good level by themselves (65.1%) and by their families (55.8%). About 15.8% of women had medical staff in their family. Getting sick with Coronavirus disease and associated death existed in 41.9% and 6% of women's families, respectively.

The mean score of covid anxiety was 11.45± 7.56 in pregnant women. Corona anxiety was low in 62.8%, moderate in 32.6% and high in 4.6%. The mean score of the psychological component (8.40± 4.78) was higher than the score of the physical component (3.06 ±3.59). In the psychological component, the level of anxiety was low in 30.7%, moderate in 67.9% and high in 1.4% of the pregnant women. In the physical component, the level of anxiety was low in 48.4%, moderate in 45.6% and high in 6.0% of the pregnant women.

In demographic characteristics, a significant relationship was observed between Corona anxiety with the women and their husbands' occupation. According to the results of an independent t-test, the mean score of anxiety in employed women was significantly lower than that in housewives ($p = 0.026$). The results of Kruskal-Wallis test also showed a significant difference in Corona anxiety score between women with different husband occupations ($p = 0.009$). The results of a post hoc test showed that Corona anxiety was significantly lower in women whose husbands were employees than in those with self-employed husbands (**Table 1**).

In addition, according to the results of the independent t-test, the mean score of Corona anxiety was significantly lower in pregnant women with client-related jobs than other pregnant women ($p = 0.032$). Also, the results of Mann-Whitney test showed that the mean score of Corona anxiety was significantly higher in pregnant women with the experience of family member(s)' death due to Coronavirus disease than in the other pregnant women ($p = 0.003$) (**Table 2**).

Also, the results of Pearson correlation coefficient test showed a direct and significant relationship between the gestational age and mean score of Corona anxiety ($p = 0.016$; $r = 0.164$). There was no significant relationship between other fertility characteristics and Corona anxiety ($p>0.05$) (**Table 3**).

Table-1: Comparison of the mean scores of Corona anxiety in pregnant women with different demographic characteristics

Demographic characteristics	Answer	Number	Mean± SD	p- value
Age of pregnant women	Less than 25 years	70	10.44± 7.29	.259 [a]
	25-35 years	119	12.21± 7.24	
	More than 35 years	26	10.69± 9.43	
Age of her husband	Less than 30 years	76	11.21± 7.50	.779 [a]
	30- 40 years	122	11.43± 7.37	
	More than 40 years	17	12.65± 9.38	
Level of education of pregnant women	less than a diploma	26	10.00± 6.80	.154 [a]
	diploma	78	12.72± 8.03	
	university	111	10.90± 7.32	
Level of education of her husband	less than a diploma	29	10.48± 6.59	.143 [a]
	diploma	96	12.58± 7.68	
	university	90	10.56± 7.63	
Occupation of pregnant women	housewives	182	11.94± 7.53	.026 [b]
	Employed	33	8.76± 7.25	
Occupation of her husband	Employee	51	11.04± 7.38	.009 [c]
	Worker	49	8.61± 6.44	
	self-employed	106	12.71± 7.79	
	Unemployed	9	14.44± 7.86	
Having children under 2 years,	Yes	25	13.36± 8.70	.180 [b]
	No	190	11.20± 7.38	
Place of living	City	191	11.69± 7.60	.200 [b]
	Village- Suburbs	24	9.58± 7.07	
Access to cyberspace	Yes	196	11.51± 7.53	.714 [b]
	No	19	10.84± 8.05	

a: One-way analysis of variance
b: independent t-test
c: Kruskal-Wallis test

Table-2: Comparison of the mean scores of Corona anxiety in pregnant women with different Corona-related factors

Coronavirus related factors	Answer	Number	Mean± SD	P- value
Loss of job due to Coronavirus epidemic	Yes	7	10.29± 9.62	.414 [a]
	No	208	11.49± 7.50	
Experiencing her husband's Loss of job due to Coronavirus epidemic	Yes	33	10.58± 6.28	.471 [b]
	No	182	11.61± 7.77	
having job in contact with clients	Yes	23	8.26± 7.15	.032 [b]
	No	192	11.83± 7.53	
the pregnant woman's adherence to Coronavirus prevention protocols	Weak-moderate	75	10.56± 7.64	.206 [b]
	Good	140	11.93± 7.50	
her family's adherence to Coronavirus prevention protocols	Weak-moderate	95	10.93± 7.57	.366 [b]
	Good	120	11.87± 7.55	
presence of medical staff in her family	Yes	34	12.18± 9.32	.543 [b]
	No	181	11.31± 7.20	
Coronavirus disease in her family members	Yes	90	12.26± 7.22	.186 [b]
	No	125	10.87± 7.77	
death of her family member(s) due to Coronavirus disease	Yes	13	17.31± 6.61	.003 [a]
	No	202	11.07± 7.47	

a: Mann-Whitney test b: Independent t-test

Table-3: Comparison of the mean scores of Corona anxiety in pregnant women with fertility characteristics

variable		Number	Mean± SD	r [a] (p-value)
Pregnancy number	1	90.00	12.23± 7.30	-.122 (.075)
	2	64.00	11.33± 7.91	
	3	34.00	11.41± 7.56	
	4	19.00	10.00± 6.68	
	5≤	8.00	7.25± 9.36	
Delivery number	0	102.00	11.88± 7.42	-.086 (.212)
	1	70.00	11.47± 7.77	
	2	27.00	11.67± 8.20	
	3	12.00	9.75± 6.27	
	4≤	4.00	3.75± 2.99	
Live child	0	102.00	11.88± 7.42	-.084 (.218)
	1	71.00	11.44± 7.72	
	2	29.00	11.55± 8.01	
	3	10.00	9.50± 6.64	
	4≤	3.00	2.67± 2.52	
Abortion number	0	176.00	11.62± 7.52	-.056 (.411)
	1	30.00	11.33± 7.32	
	2≤	9.00	8.56± 9.38	

a: Spearman correlation coefficient test

4- DISCUSSION

The aim of this study was to investigate Corona anxiety in pregnancy and its relationship with demographic, fertility and Coronavirus-related factors during the Covid-19 pandemic. The results of the present study revealed that Anxiety was low in 62.8% of women and moderate in 32.6%. The study results of Preis et al. (2020) also showed no anxiety in 21.1%, low anxiety in 35.6%, moderate and severe anxiety in, respectively, 21.6% and 21.7% of English pregnant women (24). This study is somewhat in line with the results of our study and the total prevalence of no anxiety and low anxiety in both studies is over 50%. The study of Sut et al. (2020), however, showed moderate anxiety in 64.5% of Turkish pregnant women (25). The study of Akgor et al. (2021) also showed moderate anxiety in 82.5% of Turkish pregnant women (26). In both studies in Turkey, the Hospital Anxiety and Depression Questionnaire was used and there was no report of the physical and psychological components of anxiety, while in our study, the Corona Disease Anxiety Scale was used, which is a more relevant and reliable questionnaire in the field of Corona Anxiety. The discrepancy between the results of these two studies and the present study can be due to the cultural-social differences, the extent of disease transmission control in society and socially restrictive laws. Liu et al. also reported very high levels of anxiety in Chinese pregnant women (27), which were not consistent with the results of our study. Since the study by Liu et al. was conducted in Wuhan, China, at the time of the beginning of pandemic and forced Quarantine, in those situations very high levels of anxiety in pregnant women is expected.

In the present study, the mean score of the psychological component was higher than the score of the physical component, and the anxiety level of the psychological component was low in 30.7%, moderate in 67.9% and high in 1.4% of the pregnant women. These results demonstrate that Corona anxiety has a greater impact on the psychological aspects of pregnant women. The study by Yassa et al. also showed high levels of anxiety in 62.6% of pregnant women (28). The use of different questionnaires to assess the level of maternal anxiety may be the reason for reporting different results. In the study of Yassa et al., the Spielberg anxiety questionnaire was used, while in the present study, we used a specific Corona anxiety questionnaire which reports the anxiety of pregnant women in the Coronavirus pandemic situation considering both psychological and physical components.

According to the results of the present study, the level of Corona anxiety in employed women was significantly lower than housewives. In addition, the level of anxiety was significantly lower in women who had a client-related job. A study conducted in Turkey on Covid-19 anxiety in pregnant women also manifested that Corona anxiety was lower in employed pregnant women than in housewives (25). The results of a study by Shahid et al. also showed a higher level of Corona anxiety in women older than 35 years who had high school education and were housewives (20). Nodoushan et al. also showed that there was more anxiety in housewives with lower education levels and lower incomes (29). The results of the mentioned studies are somewhat in line with the results of our study. In explaining these findings, it can be said that spending more time at home, being alone and having limited social relationships are some of the factors that increase depression and anxiety in the Coronavirus pandemy (28). A study by Perzow et al. also showed that loneliness was associated with higher levels of depression and anxiety in pregnant women during the Covid-19 pandemy (30).

Findings of the present study also showed that pregnant women with employed husbands had significantly lower levels of anxiety than women with self-employed husband, perhaps the reason for this was the higher prevalence of job closures among self-employed people than employees during the Corona pandemic; and staying at home in this group of men (husbands) can be attributed to the increasing levels of anxiety in pregnant women. However, inconsistent with these findings, Wu et al. showed higher levels of anxiety in women with university education, part-time jobs and lower incomes (31). The results of the study by Liu et al. also showed that pregnant women from middle-income families reported higher levels of Corona anxiety than those with very high or low incomes (27). It seems that the differences between the individual-social factors of pregnant women in different countries are the reasons for the differences between the results of the studies.

In the present study, Corona anxiety was significantly higher in pregnant women who had experienced the death of a family member(s) due to Coronavirus disease than in the others. Certainly the psychological impact of the close relatives' death and being in close contact with the worst consequences of the disease increases Corona anxiety. Also, the higher probability of becoming infected because of close contact with an infected person is added to other concerns.

Moreover, according to the results of the present study, increasing gestational age is positively related to increasing Corona anxiety. Nodoushan et al. also showed more anxiety in women with a gestational age over 25 weeks (29). In addition, the results of study by Shahid et al. showed that women with a gestational age of 27-40 weeks had higher levels of Corona anxiety (20). Evidence suggests that with increasing gestational age and approaching delivery, maternal stress increases regarding the transmission of Coronavirus disease to neonate during delivery or due to hospitalization in the intensive care unit (32-34).

The limitations which may have influenced the results of the Corona-related studies include the extent of disease transmission control in society and socially restrictive laws in place. Rising statistics of the patients suffering from the disease or severe social quarantine may be associated with higher anxiety and cause the studies to have various results in different societies. Therefore, it is necessary to pay attention to social conditions at the time of the study.

5- CONCLUSION

The results showed that during the Covid-19 pandemy, Corona anxiety was low in pregnant women and the mean score of the psychological component of Corona anxiety in these women was higher than the score of the physical component. Having a job in women, as well as having a job in contact with the clients, and having employed husbands were associated with less Corona anxiety in pregnant women, while death of the family members due to Coronavirus disease and older gestational ages increased Corona anxiety. The results of this study can be used to identify high-risk pregnant women for whom early interventions and prevention programs for pregnancy anxiety complications should be developed.

6- ACKNOWLEDGEMENTS

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