Awareness of Coronavirus Disease and Perceived Stress in Pregnant Women

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ABSTRACT

Background & Objective: With the outbreak of the new coronavirus, some sections of society are more vulnerable, including pregnant women. Today, with the pandemic of COVID-19, anxiety, and worries about pregnancy and fetal health have increased and will be associated with adverse consequences for the health of mothers and infants. There is also insufficient information on the effects of coronary heart disease and COVID-19 on the fetus and pregnancy. Therefore, this study aimed to examine the level of awareness of pregnant women about coronavirus disease (COVID-19) and its correlation with observed stress in pregnant women.

Materials & Methods: This cross-sectional analytical research was conducted on 384 pregnant women who were referred To Al-Zahra Medical Center at Rasht, Iran in 2020 and were selected through simple random sampling. Data collection tools were a demographic questionnaire, standard perceived stress questionnaire, and a researcher-made questionnaire on COVID-19 disease. Using statistical tests, the collected information was analyzed using SPSS 23 at an importance level of less than 0.05.

Results: The average scores of pregnant women's knowledge about the signs, symptoms, and ways of transmitting coronavirus are lower than the scores of mothers' awareness about the cause of the disease and how to prevent it. However, in general, the average score of pregnant women' knowledge about COVID-19 is high. Also, the mean scores of concern about COVID-19 and perceived stress of pregnant women about this disease in this reading are high. The present study's findings showed that the amount of knowledge of pregnant women about COVID-19 has a statistically significant relationship with anxiety and perceived stress about this disease and has a positive correlation.

Conclusion: This study's results showed that the more pregnant women are aware of COVID-19, the more anxious and stressed they are. As a result, to provide psychological support to pregnant women during pregnancy, medical staff training, the help of social media, and psychiatric experts can minimize harm to them and their fetuses.

Keywords: Awareness, COVID-19, Perceived stress in pregnant women

Introduction

In late December 2019, Wuhan, China, reported new pneumonia caused by a coronavirus later called Sars-Cov-2 causing the coronavirus diseaese 2019 (COVID-19), spreading worldwide to this date **(1)**. COVID-19 in humans causes mild to moderate respiratory illness with signs of runny nose, cough, painful throat, fever, headache, indigestion, and general weakness. Coronavirus can also cause lower respiratory tract infections such as pneumonia or bronchitis **(2)**. Like all society groups, pregnant women are also at risk of becoming infected with coronavirus, and this disease may lead to complications during pregnancy. Do coronavirus transmission from mother to fetus during pregnancy has not been determined **(3)**. Coronavirus causes significant psychological and physical stress **(4)**. Stress is a reaction to a perceived (real or imagined) threat to a person's mental, physical, emotional, and spiritual health that leads to a series of physiological adaptation responses and reactions **(5)**. Indeed, a person's overall perception and interpretation of being affected by stress is a person's perceived stress **(6)**.

One of the highest sensitive periods of a woman's life is pregnancy and childbirth, which leads to the induction of most changes, including physiological and psychological changes and socio-family roles. These changes cause psychopathological disorders Like stress and anxiety in the mothers **(7)**. Psychic health is known to be a necessary part of maternal health and fetal growth **(8)**. Also, recognized stress throughout the gestation phase, the risk of preterm labor, low birth weight, height and head circumference less at birth, respiratory distress in newborns admitted to the hospital more and more often increases neonatal jaundice **(9)**.

Maternal stress during pregnancy with rigid adverse outcomes including the poor psychosocial performance of the mother, parenting problems **(10)**, preterm delivery ،low birth weight, **(11)**, psychological patho-logy of children, changes in brain growth **(12)**, socio-emotional development, and weaker cognition **(13)** associated. Although psychological distress during pregnancy is common in the sample of pregnant women, environmental stressors such as health crises and natural disasters increase stress during pregnancy and have detrimental effects on child development. **(14)**.

The widespread announcement of COVID-19 by social media increases anxiety and concern among the people. The WHO called the coronavirus the number one public enemy. With such descriptions by health officials, coupled with the widespread restrictions imposed by many countries, COVID-19 is expected to exert a significant psychological strain on people's daily lives. **(15)**.

The nature of the unknown coronavirus and the shortage of sufficient data on transmission, risk factors, mortality, and the factors of the disease in pregnancy and the fetus **(12)** can lead to mental effects, including tension, anxiety, and crisis in the screw pregnancy **(16)**. The anxiety caused by COVID-19 can be considered a significant factor in psychic health. These women are worried about their future baby and their healthfulness; the current COVID-19 epidemic has increased the anxiety of pregnant women. **(17)**.

Factual information from reliable references had required in global health emergencies such as COVID-19, and misinformation causes worry and tension in people **(17)**. On the other hand, according to the World Health Organization (WHO); It is essential to provide people with sufficient information about the virus, whereby it occurs, and allow preventive measures to secure disease limitation **(18)**. Concerns and anxieties associated with COVID 19 disease can influence increased demand for abortion and termination of pregnancy. Given the above history, More work needs to be done to keep pregnant women and their babies away from the consequences of the disease. The only way is for pregnant people to be aware of preventing infection for themselves and others **(16)**.

In this regard, researchers conducted a study to determine the extent and relationship between knowledge of coronavirus (COVID-19) and perceived stress in pregnant women referring to medical centers in Rasht.

Materials and Methods

Study Design and Participants

This research does a descriptive-analytical study conducted in 2020 on 384 pregnant women referred to Al-Zahra Medical Center in Rasht, Iran (northern Iran).

Sample Size

The sample size in this study was 384 using

$$n = \frac{t^2 pq}{d^2}$$

Cochran's formula ( ) with a 95% confidence level (*P*=0.05). The sampling method was simple random that the eligible individuals in the study, after giving knowledge about the questions and obtaining consent to participate in the study, were given questionnaires

Inclusion and Exclusion Criteria

Admission requirements; Pregnant women were 15 to 45 years old who agreed to enter the study, and exclusion criteria included: unwillingness to enter the study, having a high-risk pregnancy (Preeclampsia - gestational hypertension - gestational diabetes, etc.), The death of a first-degree relative due to corona; have been.

Tools:

Data collection tools; a self-administered researcher-made questionnaire that validity and reliability measured. The questionnaire consists of three parts: demographic characteristics (age, education, job, place of residence, exposure to COVID-19, and coronavirus information). The second part includes a standard questionnaire of perceived stress and a researcher-made questionnaire of COVID-19 awareness.

Perceived Stress Standard Questionnaire: The Observed Stress Questionnaire was designed by Cohen *et al.* In 1983 and had 3 versions of 4, 10, and 14 questions used to measure the perceived public stress in the past month. In this research, a questionnaire with 14 questions was used. Measures ideas and attitudes about stressful situations, control, coping, coping anxiety, and experienced stress. This scale also recognizes the risk factors for behavioral troubles and explains the process of stressful connections. Cronbach's alpha for this scale was obtained in three studies: 0.84, 0.85, and 0.86. The questionnaire is scored according to a 5-point Likert scale: never = zero, almost never = 1, sometimes = 2, often = 3, many times = 4 points. Questions 4-5-6-7-9-10-13 are scored in reverse (never = 4 to many times = zero). The lowest score is zero, and the highest

score is 56. A higher score indicates greater perceived stress **(19)**.

Corona Awareness Questionnaire has 50 questions in five sections: knowledge of the type and cause of the COVID-19 disease (4 questions), knowledge of COVID-19 disease transmission (6 questions), knowledge of signs and symptoms and treatment of COVID-19 disease (20 questions), The level of concern about the spread of COVID-19 disease (6 questions), awareness of prevention and precautions in COVID-19 (14 questions) is designed based on the information of various articles and the site of the World Health Organization **(5-7, 10-17)** .The answers to the questions are yes, no and I do not know that scores from zero to 100 are awarded based on the correct answer, and the average scores in each section and in general are calculated from one hundred. The weakest score is zero, and the highest awareness score is one hundred. To evaluate the validity of the opinions of several experts (obstetrician, reproductive health specialist, midwife and nurse, and clinical psychologist) was examined. In the pilot study, 15 pregnant women were given, and the internal homogeneity of the questionnaire was determined using Cronbach's alpha coefficient α = 0.88.

Data Analysis

SPSS ver23 software package was used to analyze the results. To analyze the data, descriptive statistics (frequency distribution, mean and standard deviation) and analytical statistics (t-test and chi-square, ANOVA, Pearson correlation coefficient) were used, in which the 95% confidence interval was considered and the level of significance was considered as P-value <0.05.

Results

A total of 384 pregnant women in three groups take part in this study. The mean age of the subjects was 27.72 ±4.92, minimum 16 and maximum 42 years. The demographic characteristics of the individuals are presented in Table 1. The mean total score of awareness was 72.12±6.23. The mean scores of pregnant women's awareness about the signs and symptoms of COVID-19 disease and knowledge about the transmission of COVID-19 disease are less than the awareness of the cause of the disease and prevention of COVID-19 disease. However, in general, the mean score of knowledge of pregnant women about the disease was good. (Table 2). Also, the mean score of anxiety and pregnant women's perceived stress of COVID-19 in this study was high. The mean score of worry about COVID-19 illness was 11.15±97.61, and the mean score of perceived stress in pregnant women was 32.8±4.69 (Table 2).

Table 1. Frequency distribution of demographic characteristics of pregnant women studied

Percentage	Number		Variable
1	4	illiterate	education
19	73	High school	
43.8	168	Diploma	
6.3	24	Associate Degree	
28.9	111	license	
1	4	Masters	
100	384	Total	
73.2	281	housewife	Job
0.5	2	Medical staff	
13.5	52	Non-medical employee	
12.8	49	Freelance	
100	384	Total	
90.9	349	Urban	Location
9.1	35	rural	
100	384	Total	
22.7	87	Yes	History of the flu
77.3	297	No	
100	384	Total	

Percentage	Number		Variable
6.8	26	Yes	
93.2	358	No	**History of receiving the flu vaccine**
100	384	Total	
2.1	8	Yes	
97.9	376	No	**Contact history of a person infected with COVID-19**
100	384	Total	

Table 2. Mean scores of knowledge, anxiety and perceived stress of pregnant women studying coronary heart disease

maximum	minimum	Standard deviation	mean	Variable
100	50	12.76	82.25	**Knowledge of the cause of coronavirus disease**
91.67	41.67	10.56	61.11	**Awareness of the transmission of coronavirus**
96.43	17.86	20.17	58.18	**Awareness of the signs and symptoms of**
100	33/33	14.73	69.61	**Awareness of the treatment of coronavirus**
100	71.43	7.20	89.44	**Awareness of disease prevention and precautions of coronavirus**
84.29	58.10	6.23	72.12	**Total score of coronaviruses**
100	33/33	11.15	96.61	**Level of concern about the of coronavirus**
46	11	4.69	32.28	**Perceived stress score**

The outcomes of the present study showed that according to the ANOVA test, the level of knowledge of pregnant women about the COVID-19 disease was statistically significantly related to the amount of stress perceived by pregnant women (P=0.014). According to the Pearson test, there is a positive correlation (r=0.126) between the level of knowledge of pregnant women about the COVID-19 disease and the amount of stress perceived by pregnant women (Table 3).

In this statistical study, the ANOVA test showed that the level of knowledge of pregnant women about coronavirus disease, with the level of concern of pregnant women about coronavirus disease (P=0.006), has a statistically significant relationship. According to the Pearson test, there is a positive correlation (r=0.141) between pregnant women's awareness of the COVID-19 disease and pregnant women's concern about the COVID-19 (Table 3).

Table 3. Correlation between perceived stress, coronavirus concern and dimensions of coronavirus disease awareness in pregnant women

Variables		Knowledge of the cause of coronavirus disease	Awareness of the transmission of coronavirus	Awareness of the signs and symptoms of coronavirus	Awareness of the treatment of coronavirus	Awareness of prevention and precautions for coronavirus disease	Total score of coronavirus awareness
perceived stress	The correlation coefficient	0.145	-0.128	0.007	0.222	0.002	0.126
	P value	0.014*	0.969	0.0001**	0.885	0.012*	0.004**
coronavirus concern	The correlation coefficient	0.179	-0.048	-0.052	0.206	0.086	0.141
	P value	0.0001**	0.346	0.312	0.0001**	0.093	0.006**

p<0.01*
p<0.05**

Discussion

The outcome of this study presented that the mean scores of knowledge of pregnant women in the field of signs and symptoms and ways of transmission of coronavirus are lower than the mean score of knowledge of the cause and prevention of coronavirus.

However, in general, the information of pregnant women about this disease was good. According to the results, the study on the knowledge and opinions of 430 women in COVID-19 in Nigeria, the results showed that 82 women daresay that COVID-19 is an actual situation and the main source of their information was from television and social media. Most pregnant women have enough information about COVID-19.

More than half of those surveyed answered that COVID-19 could be treated with chloroquine. Most people showed a good attitude and preventive measures against COVID-19. However, a quarter (24) believe that infected people should be killed to prevent the spread of the virus (20).

The results of similar studies in this field, such as the study of Al-Hanawi *et al.* on the knowledge and attitude of 3427 people about COVID 19 (on transmission methods, clinical signs, treatment, risk groups, isolation, prevention, and control) in Saudi Arabia (19), the results of Peng *et al.* in China on the knowledge, attitude and practice of 872 male and female students aged 17-25 years, about coronavirus (20), the results of Zhong *et al.* on knowledge and attitude and the performance of 6,919 Chinese residents of COVID disease (21), and the results of a research conducted in Italy on adolescent awareness of COVID disease (2), all indicate a considerable level of awareness and attitude towards this disease.

The results of this study show that anxiety and perceived stress among pregnant women with COVID-19 are high. In a study of pregnant women in Quebec, Canada, researchers found that pregnant women evaluated during the COVID-19 pandemic were more likely than pregnant women to be evaluated for pre-epidemic symptoms of depression and anxiety (10).

In one study, 64.3% of women underwent a psychological change during pregnancy during COVID-19 disease (21). Also, during the COVID-19 pandemic, more than half of pregnant women in China reported moderate psychological symptoms (22).

The study by Durankus *et al.* (2020) showed that COVID-19 pandemic disease has mental effects on pregnant ladies. They showed that the level of tension and depressive symptoms in pregnant women increased during COVID-19 (23).

In China and Italy, pregnant women reported increased anxiety over the idea that COVID-19 was transmitted through the vertical transmission to their fetuses (24, 25). In a study conducted in Iran on 205 pregnant women in the field of stress, anxiety, and depression, researchers concluded that the mean (standard deviation) scores of depression, stress, and anxiety were 3.91 (3.9), respectively.), 6.22 (4.25) and 3.79 (3.39). Scores ranging from zero to 21. Symptoms of depression, tension, and tension observe in 32.7%, 32.7%, and 43.9% of associates with differing ranges from mild to very severe, individually. Based on the global linear design; The variables of spouse's education level, adequacy of household income, spouse support, and marital satisfaction were predictors of anxiety signs (26).

Research shows that anxiety in pregnant women ranges from 63% to 68% (17, 25, 27). High levels of anxiety in pregnant women during an epidemic may adversely affect pregnancy and fetal outcomes (28). In addition, increased anxiety during pregnancy leads to a higher risk of postpartum depression or other mood disorders (29). Appropriate prevention and control measures by the government and related organizations can reduce residents' fears and anxieties and improve health behaviors. Therefore, the government must provide accurate, clear, and transparent information about the epidemic situation, strengthen interactions with the people and gain the trust of the residents. When residents have high confidence in the government, stress is significantly reduced (30).

The results of the present study showed that the level of knowledge of pregnant women about the COVID-19 disease, the amount of stress perceived by pregnant women, and the degree of concern of pregnant women about the COVID-19 disease; The correlation is statistically significant and also has a positive correlation.

The results of a study on people's knowledge and understanding of the risk factors for COVID-19 disease and information sources in pregnant women in China showed that participants considered the risk of COVID-19 death and morbidity to be lower than the risk of influenza, however, many of them They were worried about getting COVID-19. Participants had sufficient information about COVID-19. The three main sources from which they received information about COVID-19 were doctors, nurses, midwives, and television, and they had a high level of confidence in these references. There was no significant relationship between the risk of COVID-19 and awareness about this disease (31). The being of little data about the influence of COVID-19 on pregnancy and uncertainty about the term of the epidemic increases the danger of anxiety and depression in pregnant women. Hence, physicians, nurses, and midwives should provide pregnant women with evidence-based scientific evidence and evidence-based learning about the influence of COVID19.

Study limitations

One of the limitations of the study was the type of study method. In this regard, in some studies, the cross-sectional method in explaining the required conditions

is poorly mentioned. However, given the prevalence of COVID-19 and the tension and worry of pregnant mother, we decided to pattern a less time-consuming study.

Another limitation of this study is the lack of measurement of fathers' fears and anxieties during their spouses' pregnancies and the extent of spouses' support during the epidemic, which is considered as a necessary and substantial factor on maternal mental health.

Despite some limitations, these studies provides useful knowledge results and helps the government plan, design, and initiate programs to help control and prevent COVID-19 disease.

Conclusion

The results showed that the level of awareness, level of anxiety, and perceived stress of the studied pregnant women of coronavirus was high. Also, knowledge of pregnant women about coronavirus, with anxiety and stress caused by coronavirus; has a statistically significant relationship and a positive correlation.

Receiving incorrect information from social media about the influence of COVID-19 increases anxiety and fear of the disease in people, especially pregnant women, and can have negative messages for both mother and fetus. Pregnant women should inform about the prevention and transmission of COVID-19 to experience less anxiety and worry. Acquiring information in major crises can cause concern in society. As a result, medical staff must be trained and prepared for major crises such as epidemics to provide psychological support to pregnant women during pregnancy.

Ethics approval and consent to participate

After providing the necessary explanations and information about the study, written informed consent was given by participants for publication. The Ethical Committee of Guilan University of Medical Sciences, Iran approved this research. The ethical code for the study was IR.GUMS.REC.1399.025.

Availability of data and materials

Applicable.

Consent for publication

Written informed consent was given by participants for publication.

Ethical Considerations

This study was authorized by the ethics committee of Guilin University of Medical Sciences with the number IR.GUMS.REC.1399.025. After providing the necessary explanations and information about the study, the written consent of the participants was obtained.

Authors' Contributions

SK, SHA, SGA, FYG, SMK *Study conception and design* was done by SGA, SK and SHA; *data analysis* by SHA; and *data interpretation* by SGA and SHA.

SGA, FYG, SMK and SHA *wrote the paper; the manuscript* was drafted by SHA and *revised* by SGA and SK; all authors read and *approved the final manuscript*.

Conflict of Interest

The authors declare no competing interests.

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