

# Experiences of A Population of Recovered Iranian Pregnant Women from COVID-19: A Qualitative Study

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## Abstract

**Background:** It seems pandemics may have a notable potential adverse effect on the pregnant women. The important biological COVID-19 aspect of the pregnancy has been led to the neglect of its psychological aspect of the pregnant women, especially COVID-19 affected. The present qualitative study aims to explore the experiences of Iranian pregnant women who were recovered from the COVID-19 pandemics.

**Materials and Methods:** This qualitative study designed based on a semi-structured interview with 9 pregnant women who had developed COVID-19 during pregnancy and had recovered.

**Results:** Data analysis revealed five themes including: anxiety and helplessness, stigma, confront disease, apprehension in the heart of desire, and seeking calmness. Recovered pregnant women from COVID-19 spoke of their mixed feelings; being happy with their survival and that of their fetus, despite getting the disease, along with anxiety and fear of the future, which had resulted in the continuation of pregnancy in the limbo of ambiguity and expectation. Recovered pregnant women during unknown pandemics, despite being saved from disease, continue to tolerate concerns about their unborn child.

**Conclusion:** Recovered pregnant women during unknown pandemics, despite being saved from disease, continue to tolerate concerns about their fetus. Therefore, they require comprehensive and complete management approaches that require familiarity with the psychological challenges of this group of patients.

**Keywords:** COVID-19, Health Concern, Pregnant Women

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## Introduction

Pregnancy is associated with a wide range of physical and psychological changes (1), that these vast changes are not seen in any other stage of a woman's life in a short time. Fear, hope, and probability crisis have made this transition period unique (2). In other hand, emerging diseases and pandemics may influence the mental health of these women (3-7). The results of a review study showed that pandemics have a significant potential for adverse effects on the pregnant women and can cause anxiety, distress, and fear (8).

The COVID-19 pandemic is growing rapidly with more than 70 million infected people worldwide. Although, the clinical consequences of COVID-19 for the pregnant women and their fetuses and or infants are not yet fully understood (9), there is a general consensus that women are vulnerable during pregnancy due to extensive physical, psychological,

and emotional changes (10-12). Unfamiliarity with the disease, on one hand, and the contradictory information about the possibility of transmitting the disease to the fetus/ infant in cyberspace and the media, on the other hand, aggravate the psychological burden of disease. Currently, due to the significant mortality of COVID-19, clinical studies are more focused on the treatment and prevention of the disease.

Likewise, the importance of paying attention to the biological effects of COVID-19 on pregnancy has led to the neglect of the psychological effects of disease on pregnant women, especially those who affects or have affected. These are while psychological crises during the COVID-19 pandemic are not far from expectation due to reasons such as uncertainty, anxiety and health concerns, reduced access to health services, reduced face-to-face



visits, and changes in routine prenatal care (4, 13, 14). Anxiety and stress consequence of pandemics were reported that lead to complications such as exacerbated nausea and vomiting, preeclampsia, preterm labor, and depression (15, 16). While the COVID-19 pandemic is an unprecedented threat that increases the need for emotional and psychological support for all pregnant women, COVID infection in pregnancy can cause severe psychological distress to the pregnant woman and her family, which in turn threatens the pregnant woman's mental health. Even after the recovery, unknown fetal/infant health concerns can easily increase the anxiety of pregnant women, especially those with poor social support, and cause serious risks to the mental health of the woman and her family (17).

Understanding the experiences of pregnant women recovered from COVID-19 can help to design effective interventions to prevent psychological crises and maternal and fetal complications in a similar situation, and to draw the attention of health care providers to the need to ensure and promote the comprehensive health of pregnant women. Since qualitative research focuses on a person's feelings and perceptions of their experiences in the real world and the world they live in, the present qualitative study aims to explore the experiences of Iranian pregnant women recovered from COVID-19.

## Materials and Methods

This study was approved by the Ethics Committee of the Research Council of Hamadan University of Medical Sciences, Hamadan, Iran (IR.UMSHA.REC.1399.096) on 27<sup>th</sup> May 2020. Written consent was obtained from the participants, and they were assured of the confidentiality of their information. All methods were performed in accordance with the relevant guidelines and regulations.

### Study design

The present study is a qualitative study based on semi-structured, in-depth interviews, using the content analysis approach (18). Participants in the study were nine pregnant women who had developed COVID-19 during their pregnancy and had recovered.

### Data collection

Qualitative data were collected between June and September 2020. After making the necessary arrangements with the provincial health center, a list of improved pregnant women from COVID-19 was prepared. Excluding women who had given birth, asymptomatic pregnant women who had passed the quarantine period after recovery were considered. The inclusion criteria were lack of medical and obstetrical problems, mental health, and ability to speak. By contacting the midwives located in the health centers who were responsible for providing prenatal care services to the mentioned pregnant women, the general condition of the women to participate in the study was examined and based on the mental state of the women,

the midwife or the researcher made phone calls with the pregnant women and invited them for an interview.

The interviews were conducted in accordance with health protocols in places preferred by pregnant women, which were mainly outdoors and in parks. Interviews were lasted 30-90 minutes and were conducted individually while observing health protocols as well as all matters related to the providing of mental security and privacy for the pregnant women in order for them to freely express their thoughts, feelings, and perceptions. At the beginning of each interview, after getting acquainted with the personal characteristics, the process of getting the disease, clinical symptoms, isolation at home and possibly hospitalization, and the treatment procedures were discussed and after drawing the pregnant woman's attention to the research goal and their valuable role in the study, permission to record the interview was obtained. The interviews were conducted by the researcher with experience in interviewing and interacting with pregnant women during previous researches. Participants were assured that the interviews would be anonymous and that their information would remain confidential, and that they could discontinue the interview whenever they wished, and the interview file would be deleted. During the interviews, pregnant women's understanding of COVID-19, their own and the fetus/infant's health concerns, and how to deal with emotions and worries, the pregnant woman's understanding of the treatment processes performed, information sources, as well as reactions from others and health care providers were discussed. The main questions included:

What do you think about COVID-19?

How did you feel when you were diagnosed with COVID-19?

How did you deal with your feelings?

How did you feel about the impact of the disease on your health and that of your fetus?

How did your family or people around you behave after you were diagnosed with COVID-19?

What do you think about the therapeutic processes and drugs?

Where did you get your information about the disease?

Probing questions were also used in cases such as the need to complete some of the participants' answers, debugging, and receiving new perspectives from individuals.

### Data analysis

Data analysis began at the same time as data collection. After repeated listening, the interviews were transcribed verbatim and imported into MAXQDA software version 12. After reading the text several times and placing each line of data as a unit of analysis, the explicit and implicit meaning of the participants' statements was extracted.

The semantic units that were related to the research questions were identified and named as primary codes. By combining and summarizing the primary codes, similar codes were categorized into relevant subcategories. Using the constant comparative analysis approach, similar subcategories were placed in a separate category. Finally, the categories formed separate themes based on semantic and structural matching. The four strategies for ensuring credibility, conformability, dependability, and transferability, were used to examine the accuracy of data in the present study (19).

**Results**

The characteristics of our participants were shown in Table 1. A total of 799 primary codes was extracted as a result of the initial encoding, and then the main codes were named based on the initial codes similarities. At this stage, 52 main codes and 20 subcategories were obtained. By continuing the integration and classification processes 12 categories and 5 main themes were considered. The main themes were included: anxiety and helplessness, stigma, confront disease, apprehension in the heart of desire, and seeking calmness.

**Anxiety and helplessness**

From the participants’ point of view, getting COVID-19 in pregnancy brought with it a mixture of anxiety, fear of death, fear of the unknowns, and especially fear of transmitting the disease to the fetus and developmental defects of the fetus, which, resulted in feelings of misery, disappointment, and even slowness of the days and prolonged pregnancy.

**Distress and turmoil**

The experience of getting COVID-19 in pregnancy was

a horrible and bitter experience for the participants, whose nightmare was not over yet, and the resulting turmoil was well evident in the words of the pregnant women. The occurrence of 3 panic attacks in one of the participants showed the huge and profound effects of the disease on the psyche of pregnant women.

“I cried a lot that day my corona test was positive, it was a very difficult situation, and it was a very bitter experience”. (P.3)

“When I heard I got the corona, the thought came to me a lot, all my thoughts were involved, I think a lot, in all respects... ”(P.3)

“Those (panic) attacks broke me a lot. I had the state of death in those panic attacks, it was a terrible experience, not everyone can understand”. (P.1)

“I don’t sleep at night at all, thoughts don’t allow me to sleep. It’s not my fault; it has become a nightmare for me”. (P.6)

“I still feel anxious, as if I have a fear in my heart. Like a state where a person rides a roller coaster that empties one’s heart...” (P.1)

“I’m worried a lot, I go to the doctor again and again”. (P.4)

“I haven’t slept for about 2 months, I sleep late and wake up early. I don’t know why I can’t sleep”. (P.3)

“We pregnant women with this disease are very emotionally devastated”. (P.9)

“One of the pregnant women was hospitalized next to me, she was very ill, she was crying a lot, I could hear her crying at night, she was coughing, her voice had a great effect on my spirit, I got nervous”. (P.1)

**Table 1:** Characteristics of participants

P	Age (Y)	Education	Job	Gestational age (weeks)	Gravidity	Parity	Gestational age at the time of diagnosis (weeks)	Clinical symptoms
1	27	M.Sc.	Employee	32	3	1	28	Myalgia, headache, nausea, dizziness, shortness of breath
2	29	Under Diploma	Housekeeper	28	1	0	19	Cough, fever, myalgia, sore throat, headache, loss of sense of smell
3	27	Diploma	Housekeeper	38	1	0	34	Sore throat, headache, loss of sense of smell
4	26	Diploma	Housekeeper	32	2	1	13	Myalgia, headache, shortness of breath
5	28	Diploma	Housekeeper	34	1	0	24	Diarrhea, and headache
6	19	Diploma	Student	36	1	0	31	Cough, shortness of breath, olfactory disorder
7	30	M.Sc.	School teacher	30	2	1	22	Headache and dizziness, diarrhea and fever
8	29	Diploma	Housekeeper	32	2	1	25	Cough, shortness of breath
9	32	Under Diploma	Housekeeper	29	1	0	19	Fever and chills, myalgia, sneezing

M.Sc.; Master of science.

## Fear

Fear of death, fear of the unknowns, fear of others, fear of transmitting the disease to the fetus, fear of fetal developmental defects, and finally, the fear of the impact of the treatment process on the fetus were the main reasons for the deep fear that pregnant women talked about:

“Since there were so many deaths, I was so scared. I was more afraid of death”. (P.1)

“I was very afraid to die.... I was afraid I wouldn't have much time to do many things or raise my children”. (P.7)

“I told my husband, if I die, who wants to raise these children? What will the children do without me?” (P.1)

“I was scared. This disease is unknown and doctors do not have enough information, since I was very worried about my fetus, I decided to change my doctor, I changed my doctor 4 times”. (P.7)

“I am afraid of others, I am even afraid of my husband, I am afraid to get the disease from him, I am afraid he will get the disease from me. We still keep the social distance after 2 months”. (P.7)

“When I heard that the result of the corona test was positive, I was really worried; I thought it might cause a big problem for me or the fetus”. (P.4)

“I was afraid, I was saying that this fetus is just being formed, I was afraid it would be born prematurely, I was afraid that maybe their lungs would not form or complete at all. I was afraid that corona would affect their eyes, their brain, somewhere...” (P.4)

“I'm very worried that the radiograph or CT scan that I had been done in the hospital will affect my fetus health”. (P.1)

“I'm afraid my fetus will have breathing trouble; their lungs will be damaged, I'm afraid to give birth prematurely. I'm afraid of many things like these”. (P.8)

“Since I am two individuals and I breathe instead of both of us, it is very different compared to one individual. Oxygen does not reach the fetus. I cannot eat, my body will not have vitamins, what does the fetus in my womb want to grow with?” (P.4)

“If the fetus shakes a lot, I would be worried. If it shakes a little, I would be worried again”. (P.5)

“I didn't have an ultrasound, I am afraid they will tell me that the fetus has a problem ... in that case, what should I do?” (P.4)

“I kept thinking that what was inside my womb wasn't healthy at all. I thought the fetus was either retarded or something was missing or not growing at all”. (P.4)

“I thought to myself that a healthy mother may give birth to a defective fetus, I've suffered so much, I've taken so much medicine, it is impossible for my fetus not to have a problem. I haven't had an ultrasound yet, I'm afraid. I'm now in the eighth month, but I still don't know if this fetus

is a girl or a boy? Is it healthy?” (P.5)

“If the fetus has a complete body, there is not much to worry about, but when the fetus is growing, the fear of defects increases. A 13-week-old fetus is not complete at all”. (P.4)

“When I was short of breath, in those moments I was afraid that the fetus inside my womb would suffocate, I was going to a place where there was fresh air and I was breathing very fast, I wanted to give air to the fetus, I was afraid that all the oxygen would reach me and not to the fetus”. (P.4)

“I didn't want to take medicine because of the fetus”. (P.8)

“I'm afraid of the drugs I have taken, for example, "chloroquine ...” (P.6)

“I'm worried that the medicine had been affected the fetus”. (P.2)

“I don't take my medicine because I think I have taken too much medicine. I'm worried, I'm taking medicine after giving birth”. (P.6)

## Boredom

Suffering an agony of the disease and also, despair of recovery, made the pregnancy look much longer than usual.

“I was very disappointed, every moment I thought I wouldn't survive”. (P.1)

“I told myself that my family couldn't do anything for me, and the hospital will not do anything for me”. (P.8)

“In those days I was not happy at all, I had lost my spirit, I didn't laugh at all...” (P.3)

“Whatever I was eating, it didn't reach my body, my thoughts were constantly involved, I couldn't sleep, I had severe shortness of breath until a month ago, I didn't have oxygen at all, I was going to suffocate”. (P.4)

“I didn't believe in good news... I believed the bad news more”. (P.7)

“Since I wasn't eating anything, I had lost a lot of weight and I had no womb at all”. (P.4)

“Before Corona, I was doing very well, but after that, I had an ultrasound, they said that the fetus had lost weight, I had no appetite, I had no sense of smell”. (P.7)

“I think this pregnancy takes too long, because its duration lasts so hard...” (P.3)

“I seem to have been pregnant for several years”. (P.4)

“These days are passing very slowly...” (P.9)

## Stigma

Concerns about the disease effects on the fetus and its complications constantly directed pregnant women



to the health centers or hospitals where they were faced with keeping distance and some misbehavior of health staffs. Due to a sense of guilt, stigma was induced in our participants.

### **Being different**

Keeping distance from pregnant women by others, which had induced them a sense of being different and unusual, that led to more feeling of isolation from them:

“People behave very badly as if we have leprosy...” (P.3)

“I tell anyone that I took the corona, they immediately get scared and run away, doctors, nurses ... they get away quickly”. (P.3)

“The behavior of the hospital triage staff was very bad (with sadness). They told me to stand back, observe the distance, take that silver line, and go to the isolation room”. (P.6)

“They were arguing with me ..., why did you come? The doctor told me God damn it, why did you come (to the clinic)? Go, we can do nothing for you here”. (P.3)

“Once I went to the clinic for prenatal care, they told me not to enter, stay out ... I was very upset ... I did not go anymore”. (P.5)

“I was worried that my name would be in the hospital, they would keep me separate ... I don't like to be separated, like to be with others, like a normal person”. (P.3)

“I don't want people to know that I had a serious disease, it was a disease, it is over and gone. I don't like to be considered sick”. (P.3)

“If I become isolated, I will be very worried; one will feel that something bad has happened that she has been separated from the others”. (P.2)

“I want to be like everyone else, to give birth like a normal person, not to be separated and given special measures such as special tests or special care for me”. (P.2)

### **To be guilty**

In some participants' words, sense of guilt due to contracting the illness was perceived which was accompanied by their concern about the disease transfer to relatives and loved ones, to the extent that some preferred to hide their disease from others.

“If people around me get corona, they will say they have gotten it from me. I don't want others to blame me”. (P.3)

“My husband goes to work, so he may get corona from others, but people say he got the disease from his wife”. (P.2)

“In general, now everyone has corona, anything you touch has corona, is it my fault?!” (P.3)

“I was more worried about others; I was worried that those around me would get sick”. (P.5)

“I had a guilty conscience because my family took the disease from me. That day was very difficult for me”. (P.7)

“When I went to the health center, I said I don't have corona, if I had, I'm fine now”. (P.3)

“My husband said, "Don't tell the new doctor that you had corona." I didn't say it at first, but then I thought my name was in the system, the doctor will finally know”. (P.7)

### **Confront disease**

The confrontation of pregnant women with COVID-19 has included a wide range of denials and projections and also, rational acceptance and management of the situation, that indicated a conflict with reality in some and rational acceptance in others.

### **Conflict with reality**

Some of our participants considered some strategy to fight the disease, including denying the existence of COVID-19, denying self-infection as well as projection.

“Corona is a lie, this is the government's policy and this issue has been spread by the government among the people so that the people forget about inflation and prices and so on...” (P.3)

“They (the government) magnify the issue”. (P.6)

“I wonder why people are afraid. Corona is not scary ... what happened that they disinfect so much?” (P.3)

“I see pregnant women who are very scared, don't go out, I say it is not scary. I wasn't afraid at all, I'm not afraid now. For example, now I go out, they say there is the corona, mask ... gloves ... I don't accept these at all”. (P.3)

“I still say I didn't have corona from the beginning. The test was not correct, I had a cold. They said the test was positive, I said no it was not”. (P.3)

“I don't think about these things at all, about the problems of the baby. I don't ask the doctors anything about this”. (P.6)

“I don't listen to the news at all”. (P.7)

“I didn't want to have an ultrasound. Not knowing something is better than knowing it. The more one knows the more one is afraid”. (P.4)

### **Acceptance of reality**

The rational acceptance of the disease and the effort to manage it, the use of self-consolation strategies and self-justification as well as the compensation of the past, were strategies of other pregnant women against COVID-19:

“I think there is a problem (for the baby), but I don't have to stress, I think about it, but life should go on”. (P.6)

“I try to keep myself busy somehow”. (P.1)

“I convinced myself. I tried to keep myself busy so I

wouldn't think about anything". (P.9)

"I got corona, but now I'm alive, I'm healthy..." (P.4)

"I'm scared but I don't want to think about it. It will be clear later. No one knows what will happen". (P.6)

"You have to cope with yourself. If you want to think to yourself constantly, you will be more afraid, more worried, and you can no longer live". (P.9)

"A few months have passed since my illness, and whatever the problem is, it will be over by the time I give birth". (P.5)

"I don't think much. I say that until today the baby remains healthy, it will remain healthy in the rest of the way, God willing". (P.4)

"I told myself that the doctor had more experience than me, she's giving me hope. I calmed down when I thought like that". (P.6)

"The baby isn't born yet so what problem can happen to it? Even when it is born, still nothing will happen to it. It's just a baby". (P.3)

"I think to myself, I got this disease in six months of pregnancy, now I'm eight months pregnant, it has been two months... whatever it was, now it's over". (P.5)

"The midwife examined me and said that the child had grown up, I was relieved". (P.4)

"After recovery, I tried to eat more to gain weight so that the baby would gain weight". (P.7)

"The only reason I convinced myself to eat was the baby. I said I should eat so that the baby wouldn't be weak". (P.6)

### **Apprehension in the heart of desire**

Our participants like other pregnant women were looked forward to give birth baby, but concerns about the baby's health, breastfeeding, isolation, and even neonatal infection made their world full of apprehension and anxiety.

### **Waiting**

The participants' words were full of anticipation for the delivery and desire to see their baby:

"I'm looking forward so much for childbirth. In fact, I have reached to the point that I even asked my doctor; can I have a cesarean section sooner?" (P.5)

"I'm waiting to give birth soon to see a healthy baby. I can't bear to be concerned anymore". (P.6)

"As I close to childbirth, I say, My God! Just do something so that a healthy baby will be born, that's all. My mind gets involved again, I'm scared". (P.4)

"May God make these few weeks go faster so that I would be able to see God has given me a healthy baby". (P.5)

### **Apprehension**

Despite their eagerness to give birth, they were deeply concerned about the health of their fetus.

"I'm much stressed. The closer I get to childbirth, the more I worry, especially since I have entered the eighth month of pregnancy". (P.5)

"Only health, I just want to see at their birth, healthy in all aspects". (P.8)

"My husband and I have always been worried about the baby's health, we want to see if their arms and legs are healthy? Is their face healthy? We are worried that the baby may be premature or too small". (P.8)

"I'm waiting to give birth, I am waiting for the baby to be examined and to see if they are healthy, their lungs, their heart... if their heart rate is regular or not". (P.4)

"The sweetest moment for a mother after 9 months expectance is to see the baby at the moment of birth. Well, if they don't give her the baby due to its illness or, God forbid, the child is defective, the mother will really be devastated". (P.7)

"I said, "Can I have a test before the baby is given to me so that I can be relieved that the baby will not get the disease from me?"". (P.8)

"I'm very afraid of being a carrier; I want to do another test before breastfeeding". (P.9)

"I'm very worried that someone will carry the disease and approach my baby or I will be infected and my child will be taken from me in the hospital". (P.1)

"I don't accept that my baby will be separated from me after delivery, it is too hard. If the baby is taken away from me, I will go crazy..." (P.3)

### **Seeking calmness**

In the purgatory of ambiguity and fear, pregnant women sought to find calmness as well as ensuring that there were no adverse outcomes of COVID-19 during pregnancy.

### **Trying to get reliable information**

The Internet and cyberspace were specifically used by pregnant women to obtain information about the COVID-19 effects on the pregnancy, and some of them preferred reliable information from health professionals.

"I searched the internet, I looked for whether fetus and or infant is affected by their mother. Despite of limited information, it was positive, it means possible". (P.1)

"I was influenced of Internet information and virtual data, too effective, I was very scared". (P.6)

"I read a lot about the Chloroquine ... It was written on the Internet that it is transmitted to the baby through the placenta". (P.6)

"On the contrary, cyberspace takes away my peace of

mind". (P.7)

"Sometimes I read some good news, for example, "fetus does not get the disease from their mothers", a week later another piece of news comes that fetus is like adults". (P.1)

"I go straight to Google and search: Pregnant women and Corona ... fetus ... What is good for pregnant women?" (P.7)

"I read that if the fetus in the womb received this drug, it would be congenitally blind or deaf ... Should I take the drug or not? I took one of two pills..." (P.6)

"When I read about the pill, I didn't take the medicine and I preferred to stop medication use ... I said I would tolerate the pain, but I would not take the medicine". (P.9)

"I searched for the medicine on the internet, I read that the drug had a bad effect, I was very upset. I searched the internet a lot at that time, I hoped that these data were wrong, I found nothing, it was not wrong, all of them was correct". (P.5)

"What I read on the internet may have been wrong, but it has ruined my mentality a lot". (P.6)

"What will be happening? I search on the internet, and I looked for it". (P.7)

"Based on the internet, the fetus will gain very little weight, Low birth weight. risk of preterm delivery, I was worried". (P.7)

"Every day new information comes because of this virus novelty". (P.5)

"I asked the doctor and midwife for information. I didn't ask anyone else". (P.4)

"I asked some doctors, they said the disease isn't transmitted from you to the fetus. what relieved my fear". (P.4)

"I asked the doctors, "What about my fetus?" They said: do not to be afraid, my fetus would not have a problem. This doctor's statement calmed me down, that made me less worried about it". (P.6)

## Consolation

The consolation was understandable in the words of pregnant women. Not being alone in getting COVID-19, the long distance between the illness and the time of delivery, and especially surviving after getting the disease as well as the hope that the fetus will not be at risk may provide consolation in these women.

"I think it's good that I got the disease now. My fetus birth time is after my illness , after the end of my illness". (P.7)

"When I saw another pregnant woman who is infected, I said: well, I'm not alone, we are in the same boat". (P.7)

"Somehow I calmed myself down, saying to myself: "There are others who are like you, this pain is not only

for you". " Other affected mothers and their fetus same as me and my fetus" (P.3).

"At that time, my only question was: God, why me? Then I thought and said: Corona influenced the whole world, I am not alone, it gives me hope". (P.1)

"I said I get the corona, but I didn't die..." (P.8)

## Spirituality

Praying, trusting God, and believing God providence gave some relief for disturbed pregnant women.

"I always say, God! I deposit my fetus, my lovely baby, for you..." (P.4)

"I believe God is very merciful". (P.9)

"I just pray, God! Only you, God, keep my fetus, my child, safe..." (P.4)

"Whatever God wills, it will be the same. If God wills, He gives life, and if He will not, He does not give". (P.7)

"When I recovered from the disease, I said that God saved me. God will save my child". (P.2)

"My relatives prayed for me so much ... I heard, I believe their prayers saved me, so these also will save my fetus. Then I relied on God". (P.6)

"Thoughts were coming, stress was coming, but there was still hope in my heart". (P.6)

"I had a dream.... he saved me, so surely he will save my baby too". (P.4)

"This was an experience for us ... one's faith becomes stronger". (P.9)

"Maybe God is testing us". (P.4)

"God is munificent and merciful, death and life are in the hands of God". (P.2)

## Discussion

The prenatal period is mentioned as a very important transitional stage in the formation or development of the family. Several health risks and complications may happen during pregnancy for the mother and their fetus (20, 21). In this transitional period, the psychological dimension of health, including emotions and thoughts, is less considered by health providers. Based on the World Health Organization reports, about 10% of women during pregnancy and 13% of them after childbirth suffer from some mental illnesses, especially depression. In developing countries, this may be even higher, 15.6% during pregnancy and 19.8% after delivery (22). Pandemics, meanwhile, can make people exposed to anxiety, sadness, and fear increasingly. Some researchers have even suggested the possibility of long-term psychological effects due to the COVID-19 pandemic (3).

In the study of Ahorsu et al. (23), there was a significant and direct relationship between fear of COVID-19 and

depression, anxiety and suicidal ideation in the pregnant women and there was even a negative relationship between fear of COVID-19 and the quality of mental life of their husbands. The results of a review study showed that infectious pandemics can have major psychological effects such as negative emotions, living with uncertainty, concerns about infection, concerns about prevention or treatment, disruption of routine, impaired expectations of birth and prenatal and postnatal care, which reflects the unique needs of women in pandemic crises, including health care professionals support and counseling (8). It should be noted that perinatal period is considered as a vulnerable phase of life during COVID-19 pandemic (20). This concern designed studies on the effects of this infection during pregnancy (24). Although, the clinical consequences of COVID-19 in pregnant women and their fetus are still unclear, the debate and panic spread by the media through the dissemination of false, contradictory, and sometimes manipulated information doesn't only affect the mental health of pregnant women, but it can also put the outcomes of pregnancies at risk (10). It seems this concern follow by elective cesarean section to prevent transmission of the disease to them or their families during medical visits (25). In the present study, two participants had requested premature cesarean sections due to intolerance of more anxiety and further expectation.

Turbulence caused by mental and emotional conflicts, along with anxiety and fear of fetal disease and developmental defects, made a common concern of almost all pregnant women recovered from COVID-19 in our study, which has been reported in the similar infectious pandemics (26-28). We observed that our participants still suffer from fear about their future and childbirth after their cure, therefore we considered two levels of fear in our analysis including, during illness and after illness. We do not neglect of the unknown feature of this disease and its probable effect on the fetus and consequent psychological effects on our participants. We observed that recovered pregnant women from COVID-19 spoke of their mixed feelings, such as the happiness of themselves survival and their fetus, anxiety and fear of the future and an ambiguity pregnancy time. Also, they showed different strategies, such as denial of disease and projection to rational acceptance and active management of the situation. Pregnant women who denied the existence of COVID-19 or denied having it suffered from a type of stigma that was specifically the result of the behaviors and reactions of others towards them. This issue, which is probably not unique to pregnant women with COVID-19, is very important in psychology. The most remarkable aspect of our needs is "live in the social and live with social".

Maintaining social distance, especially by health care staff, for pregnant women had meant being unusual and different, leading to their further isolation. Of course, most of the participants in our study agreed with observing health protocols and social distance, but they complained more about the harsh and disrespectful behavior of some

health care workers and their lack of understanding of pregnant women's concerns. Perhaps the reason for these violent and assertive behaviors of health providers can be attributed to their greater understanding of the seriousness of the disease and its high rate of transmission. According to the Rogers theory (1983) of protection motivation, when people believe that they can do something that is effective against the threat of a disease, more fear will further intensify preventive behaviors (29).

In the present study, participants were encountered with two end points on a spectrum, rational and realistic approach, and also, their concern about the probable side effect of their disease on their fetus.

At another end point of this spectrum, there were denial, projection and deliberate ignorance of news and events and even not going to the clinic to investigate probable their fetus problems. They believed that "more awareness leads to more concern". Participants in the study by Lynch et al. (27) also did not report much concern about the risk of influenza pandemics. Even more than a quarter of them doubted that the disease was as dangerous as reported, and blamed the media for causing the hysteria. Concerns about infection may also depend on how people perceive the risk (30, 31). For example, people who didn't know anything about the virus had a lower perceived risk during the influenza pandemic (28).

Seeking the lost peace of mind, our participants sought refuge in the media, especially cyberspace, so that they can get promising information about the possible effects of the disease, and drugs on the fetus. The influx of information and the contradiction of various scientific and non-scientific sources sometimes caused women to lose their peace of mind. Confusion of the users as well as their deprivation of peace has been reported in the other studies in Iran and other communities (32, 33). In the Lynch et al. (27) study, pregnant women expressed distrust of the media because they thought they would benefit from the outbreak. In the study of Sakaguchi et al., more than 65% of participants found media information confusing and useless (34). In contrast, Sasaki et al. (35) found that television, the Internet and newspapers were the most common sources of information about the H1N1 outbreak.

Living with uncertainty, doubt, and confusion about the risk of infectious pandemics in the pregnancy, exacerbated by conflicting media messages have been reported by other pregnant women during other similar pandemics (36, 37). Uncertainty as a stressor during pandemics is not limited to pregnant women, but in particular, the fear and distress caused by uncertainty in pregnant women can lead to negative pregnancy outcomes (37). Health care providers should try to reduce uncertainty by reassuring pregnant women what information is accurate and up-to-date, and that information is verified by reliable sources. In the Lynch et al. (27) study, pregnant women accessed to information resources, including health care providers such as obstetricians, midwives, and pediatricians.



In the present study, obtaining information from trusted sources such as midwives and physicians who were able to establish a proper emotional connection with these mothers in critical situations, provided a confidence and comfort for them. But at the same time, pregnant women's emphasis on the unfamiliar with the disease also undermined their confidence in the medical staff. "I was saying the disease was unknown, and you, the medical staff, didn't have enough information". It is noteworthy that even the aim of some of our participants was finding the answers to their questions; and during the interview they frequently asked for new information about the disease transmission to their fetus and possible future problems. It should be noted that the researcher tried to respond to the concerns of the participants as much as possible after conducting the mainstream of the interview and at the end of recording the interviews.

Interestingly, almost all our participants mentioned the great psychological support of their husbands in the days of illness and hardship, which was not included in this article due to a large number of codes and categories extracted from the interviews. Statements such as "Take care of yourself, if you survive, there are many opportunities to have children "could be a great relief for them. Also, Lee et al. (30) found that pregnant women received significant emotional support and positive social interaction during the SARS pandemic.

## Conclusion

The aim of this study was to explore the experiences of some of Iranian pregnant women who recovered from COVID -19. It is still unclear what effect the COVID-19 pandemic experience will have on the mental health and reproductive health of people, especially pregnant women. Although, midwives and health care providers need to be aware of the fact that recovered pregnant women during unknown pandemics, despite being saved from disease, continue to tolerate concerns about their unborn child. Therefore, they require comprehensive and complete management approaches that require familiarity with the psychological challenges of this group of patients. It is hoped that the results of this study will help in similar crises.

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## Authors' Contributions

F.S., S.A.; Contributed in the study design, interpretation

of the data, and drafting the manuscript. F.S.; Conducted the interviews. R.B., M.R.; Contributed in interpretation of the data and manuscript draft preparing. L.H.; Analyzed data and contributed in the manuscript development. All authors read, commented, and approved the manuscript.

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