

# Lived Experiences of Recovered Pregnant Women from COVID-19: A Descriptive Phenomenology

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## Abstract

**Background:** Pregnant women represent a vulnerable demographic to COVID-19. In addition to the physical health risks posed to both the mother and fetus, COVID-19 engenders intricate and unique post-recovery experiences among pregnant women. This study explored the lived experiences of pregnant women who have recovered from COVID-19.

**Methods:** A descriptive phenomenological approach was employed for this research, conducted in southeastern Iran from January to May 2021. A purposive sampling method was utilized to select 12 participants, and data collection was accomplished through semi-structured interviews. The Colaizzi approach was employed for data analysis.

**Results:** The study initially generated 278 codes, from which three principal themes aligned with the research objective. These primary themes encompass health risks, maternal responsibilities, and challenges associated with recovery.

**Conclusion:** Pregnant women in the process of recovering from COVID-19 confront various health-related challenges, as well as those about child health. Policymakers, obstetricians, and midwives must provide support to enhance these individuals' post-recovery quality of health.

**Keywords:** Survivorship, COVID-19, Pregnant women, Descriptive phenomenology, Lived experience

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## 1. Introduction

In December 2019, cases of pneumonia from unknown sources were reported in Wuhan, China. Examination of the lower respiratory tract revealed evidence of coronavirus. The disease was named Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2). The new coronavirus was officially designated as COVID-19 by the World Health Organization. The disease rapidly spread to other countries (1), leading to the WHO declaring it a pandemic in March 2020 (2). The primary clinical symptoms of COVID-19 include fever, cough, and dyspnea. Less common symptoms may include headaches and some gastrointestinal issues. COVID-19 is more likely to affect individuals with underlying diseases and a weakened immune system.

Additionally, pregnant women face higher risks due to physiological changes during pregnancy (3).

These changes occur to reduce the acute immune response to inflammation and prevent fetal rejection. Conversely, mechanical and biochemical factors affect gas exchange and pulmonary function during pregnancy, reducing functional residual capacity and residual volume. These physiological alterations in the immune and cardiopulmonary systems during pregnancy render pregnant women more susceptible to severe illnesses following exposure to viruses, particularly respiratory ones. Consequently, concerns have arisen regarding the severe implications of the new coronavirus pandemic for pregnant women and its effects on infants (4). A study involving 240 pregnant women with COVID-19 found that the mortality rate among pregnant women was significantly higher than that among other women of the same age. Moreover, pregnant women were 3.5 times more likely to be hospitalized due to COVID-19 than women of the same age in the general population.

COVID-19 also posed a 13-fold higher risk of death among pregnant women compared to their peers, even though most pregnant women with the virus displayed no or mild symptoms (5).

Another study conducted on 2,130 pregnant women with COVID-19 across 18 countries reported that 11 women died during pregnancy while the remaining 1,424 recovered. Affected pregnant women were also 76% more likely to develop preeclampsia and hypertension and 59% more likely to experience premature labor, necessitating neonatal care in the NICU (6). The results of a systematic review involving 31,016 pregnant women across 62 studies also revealed that the majority (77.7%) contracted COVID-19 during the third trimester of pregnancy, with 16.4% experiencing severe infections. Seven people required ICU admission, eight needed mechanical ventilation, and two women tragically succumbed. Approximately, 80% of the women gave birth with 48.4% undergoing cesarean deliveries. Among the newborns, 23.4% were born prematurely (before 37 weeks), 16.6% had low birth weight, and 23.7% were admitted to the NICU. The records indicated 21 stillbirths (1.6%) and 24 neonatal deaths (1.6%) following birth, while 50 infants (3.5%) tested positive for COVID-19 (7).

Many pregnant women recover from COVID-19 but face various psychological challenges that can impact their pregnancy and the future of the fetus. There have been limited studies on this aspect of the infection, and currently, only limited information is available regarding pregnant women with COVID-19. However, emerging infections have been shown to affect pregnant women and their fetuses (8) significantly.

The challenging and stressful conditions associated with COVID-19, along with the psychological and physical effects often experienced by pregnant mothers, can have adverse consequences for both the mother and the fetus. Recovered pregnant women require support and follow-up care. Similar to other high-risk diseases, COVID-19 can have significant psychological effects on those who have recovered, including fear of death, anxiety, depression, and stress, all of which can impact the healing process.

Considering the above factors and the limited evidence available, understanding the lived

experiences of pregnant women who have recovered from COVID-19 is crucial for obstetricians and midwives. This understanding can help identify their problems and challenges in providing care and managing pregnancies after infection. This study aimed to explore the lived experiences of pregnant women who have recovered from COVID-19, utilizing a descriptive phenomenological approach in southeastern Iran from January to May 2021. Examining the challenges faced by these individuals can serve as a foundation for planning and implementing necessary interventions to support their physical, social, and psychological well-being, ultimately contributing to successful pregnancies and the birth of healthy babies.

## 2. Methods

### 2.1. Design, Participants, and Settings

The primary objective of the phenomenological method is to comprehend the fundamental structure of human experiences and achieve a profound conceptual understanding of lived experiences. Phenomenology can be applied to concrete issues, such as employment, marriage, organizations, and other social phenomena. The exploration of human experiences and the interpretation of these encounters is crucial in this approach. In phenomenological research, the diverse experiences of individuals are temporarily suspended, meticulously analyzed, and methodically compared to unearth the phenomenon's essence (9).

In the present study, 12 pregnant women who had recovered from COVID-19 participated. These participants were deliberately selected using a purposive sampling method to maximize diversity in age, gestational age, symptoms, hospitalization history, and home quarantine. The participants were recruited and subsequently monitored at the disease center based on their positive PCR (polymerase chain reaction) test results. Their medical history, including hospitalization, home quarantine, or follow-up treatment, was thoroughly examined, and interviews were conducted one month after their recovery. The inclusion criteria encompassed a history of hospitalization or a positive PCR test, pregnancy, and the capacity and willingness to engage in the study. Exclusion criteria were applied to individuals lacking a history of COVID-19 and those unwilling to participate in the research.

## 2.2. Data Collection

Semi-structured interviews were employed for data collection. Upon recruitment of participants, the research objectives were elucidated, and the interview questions were furnished to facilitate their mental preparation. Interviews were conducted with the participants' informed consent in an open setting, meticulously adhering to health protocols and collaborating with the participants, demonstrating a high level of willingness. Ethical principles were scrupulously upheld through disseminating verbal and written information to the participants, emphasizing the voluntary nature of their involvement and the acquisition of written consent. Participants were assured of the utmost confidentiality surrounding their discussions. A proficient female researcher, well-versed in interview methodologies, with direct exposure to COVID-19 patients, and who had undergone a negative PCR test to ensure participants' safety, conducted the interviews. The researcher proffered her contact number and email address, allowing participants to withdraw from the study at any point should they choose to do so. Participants were also allowed to access the research findings should they express interest.

The interviews were initiated with inquiries such as "Please elucidate how you contracted COVID-19," "Share your experiences about COVID-19, encompassing hospitalization or home-based treatment," and "Delve into your experiences post-recovery from COVID-19." These preliminary questions were succeeded by exploratory queries, as illustrated in Table 1. The duration of each interview ranged from 30 to 45 minutes, contingent upon the comfort and tolerance of the patient. All interviews were meticulously

recorded and transcribed following each session, with simultaneous analysis being carried out to inform the structure of subsequent interviews. Data were concurrently amassed and scrutinized, with sampling persisting until data saturation was attained. No novel information emerged after the initial 10 interviews, and the previously amassed data were reiterated. Nonetheless, an additional two interviews were conducted to augment the overall quality of the study.

## 2.3. Data Analysis

The data analysis in this study adhered to the seven-step Colaizzi approach (10). The subsequent steps were executed as follows:

1. Initially, all descriptions provided by the participants were meticulously perused to cultivate a sense of empathy with their experiences.
2. Subsequently, each protocol was carefully reviewed, and significant phrases were meticulously extracted.
3. The meaning inherent in each of these noteworthy phrases, duly categorized under the overarching term "regulated concept," was meticulously constructed by the research team.
4. These meticulously organized concepts were then further aggregated into thematic categories.
5. The resultant findings were methodically synthesized to depict the phenomenon under investigation comprehensively.
6. To conclude this rigorous process, a lucid statement was formulated to expound upon the

**Table 1:** Interview questions (N=12)

1	Please describe COVID 19 and what information do you have about it?
2	How do you see the relationship between COVID 19 and pregnancy?
3	How did you feel when you got COVID 19? Please talk about your feelings?
4	How did the symptoms start? How did you experience the disease?
5	What did you think about the fetus and the fate of the pregnancy when you were sick?
6	What did you do when you had coronary heart disease?
7	Talk about your feelings when you are hospitalized?
8	How did you feel when you heard on TV, on the Internet, etc. that COVID 19 is bad for pregnancy?
9	Talk about the positive and negative thoughts that were in your mind when you had COVID 19?
10	How did you feel when you recovered? Please talk about it?
11	Now that you are well, what do you think about the end of pregnancy and future COVID 19 for yourself and your baby?
12	Finally, we asked an open question so that participants could express whatever they wanted.

phenomenon being examined comprehensively.

7. In the final step, findings were presented to the participants, and their valuable input regarding the uncovered results was earnestly sought.

#### 2.4. Trustworthiness

Guba and Lincoln's criteria were employed to validate the study, encompassing four essential criteria: credibility, confirmability, dependability, and transferability (11).

To establish credibility, two research team members independently coded the interviews, resulting in a high level of agreement in their assessments. Confirmability was ensured by

the researcher's sustained immersion in the data, utilization of bracketing techniques, and verification of findings through consultations with participants, colleagues within the research team, and two external faculty members. Rigorous attention was given to data collection, transcription, and recording, with ample time dedicated to these processes.

Regarding transferability, the information underwent scrutiny and validation by two faculty members unaffiliated with the research group but possessing expertise in qualitative research. Additionally, meticulous detailing of the study area was provided to enhance transferability, comprehensive participant descriptions were included, and direct quotations were incorporated into the research.

**Table 2:** Demographic characteristics of participants (N=12).

Number of Participants	Age	Education	Occupation	Gestation at diagnosis	Number in-patient days	COVID-19 Signs & Symptoms	History of chronic disease	Pregnancy outcome and fetal status
P1	35	Diploma	Housewife	36	7	Fever, bruising, pain, cough, shortness of breath	No	Cesarean / Normal
P2	38	Academic	Employee	32	8	Symptoms of colds and digestive and respiratory problems	Hypertension/ Diabetes	Normal delivery/ Normal
P3	33	Academic	Employee	33	4	Cough and runny nose	NO	Normal delivery/ Normal
P4	35	Diploma	Housewife	30	5	Cough, pain and increased liver enzymes	Hypertension	Cesarean / Due to low weight hospitalized in NICU
P5	28	Academic	Nurse	28	4	Cough, Pain, Nausea and Vomiting, Dyspnea	No	Preterm delivery/ NICU
P6	38	Academic	Employee	28	5	Cough, Pain, Nausea and Vomiting, Dyspnea	Hyperglycemia	Normal delivery/ Low birth weight
P7	34	Under-graduate education	Housewife	35	7	Cough and dyspnea	No	Normal delivery/ Normal
P8	40	Under-graduate education	Housewife	30	5	Cough and dyspnea	Heart disease	Normal delivery/ Normal
P9	30	Diploma	Housewife	31	4	Fever, Pain. Cough	No	Normal delivery/ Normal
P10	25	Academic	Employee	24	4	Nausea, Vomiting and dyspnea	No	Normal delivery/ Normal
P11	22	Academic	University student	37	8	Cough, Pain, Nausea and Vomiting, Dyspnea	No	Cesarean / Due to low weight hospitalized in NICU
P12	26	Academic	Employee	23	6	Cough, Pain, Nausea and Vomiting, Dyspnea	No	Normal delivery/ Normal



**Table 3:** Themes and sub-themes, experiences of COVID-19 pregnant women (N=12).

Main themes	Subthemes
Health risks	Fear of getting COVID-19
	Annoying loneliness with COVID-19
	Combined physical and mental problems
	Annoying fear and anxiety between life and death
	Hospitalization and reaching the end of the line
Motherhood responsibility	Increase responsibility for your own health to save the fetus
	Concerns about the present and future of the fetus
	Resistance to disease and its complications due to secondary responsibility
	Sacrifice and devotion to God to get rid of circumstances
	Increased resilience to disease
Recovery challenges	More sensitive to adherence to the principles and protocols of disease prevention
	Appreciate regaining health
	Control positive and negative thoughts about the future of pregnancy
	Strengthen yourself physically and mentally and prepare for the unknown future

### 3. Results

The study encompassed 12 participants, whose average age stood at 36.4 years. Most of these individuals assumed the role of homemakers, with 75% of the cohort contracting COVID-19 during their third trimester of pregnancy. Among these participants, 80% necessitated hospitalization, while the remaining 20% underwent treatment and quarantine within their homes. The principal reasons prompting hospitalization were respiratory distress and cough, and the mean duration of hospital stay amounted to 8 days (Table 2).

The study's findings unveiled 278 initial codes, systematically extracted following the research's objectives and inquiries. These initial codes were subsequently categorized into three overarching themes: "Health Risks," "Maternal Responsibilities," and "Challenges in Recovery" (Table 3).

#### 3.1. Health Risks

With the onset of symptoms and the suspicion of COVID-19, apprehension gradually engulfs the pregnant woman. As the illness manifests itself with symptomatic manifestations and debility, she initiates the quarantine phase at home, not only to shield herself from the virus but also to conserve her energy for the benefit of her unborn offspring. Throughout this period, she frequently finds herself in solitary repose, grappling with the disconcerting solitude that can precipitate physical and psychological challenges. This seclusion nurtures disquieting ruminations, particularly the apprehension of mortality. The dread of demise becomes a recurrent nocturnal ordeal, exerting

an influence on her sleep patterns and overall state of consciousness. Some participants in the study emphasized that hospitalization became an imperative step as their symptoms deteriorated, driven by their unwavering resolve to safeguard the well-being of their progeny. To these individuals, hospitalization assumed the guise of a final recourse in their confrontation with COVID-19.

For instance, one participant articulated, "Upon receiving a positive diagnosis for COVID-19, I promptly contemplated my well-being and elected to undergo self-isolation. Given my pregnancy, I felt an augmented sense of duty. My paramount focus revolved around preserving my health in the interest of the fetus" (Participant 5).

Another participant conveyed, "As my condition progressively worsened, I encountered profound exhaustion, respiratory distress, and a decline in my arterial oxygen saturation levels. It was at this juncture that the medical practitioner advocated for my hospitalization. Hospitalization seemed akin to my ultimate recourse, and I was inundated with an impending sense of foreboding" (Participant 6).

However, another participant delineated, "My corporeal afflictions escalated, encompassing musculoskeletal discomfort and gastrointestinal perturbations. My psychological state bore profound consequences. My paramount source of trepidation revolved around the specter of mortality, which tormented my insomnolent nights" (Participant 9).

#### 3.2. Motherhood Responsibility

Participants underscored that maternal

responsibilities become significantly heightened when facing life-threatening COVID-19. Alongside concerns for their own lives, they must also consider the life and completion of the pregnancy. The use of medications that can save the mother's life poses a potential risk to the fetus, necessitating extreme caution. Consequently, mothers are willing to endure numerous hardships in the name of safeguarding the unborn child. This heightened sense of responsibility underscores the significance of two lives. Given the absence of a definitive cure for COVID-19, many turn to prayer and seek solace in faith. They try to elevate their spirits, set aside negative thoughts, combat the disease, and rely on a higher power. This strengthens their resilience and bolsters their determination to recover. Nevertheless, they maintain a sense of surrender to the will of God, prepared for any unforeseen event involving themselves and the fetus.

For instance, one participant expressed, *"I believe it's incredibly challenging when you're responsible for two lives in the face of COVID-19. You can't take any chances that others might when it comes to the disease, as it could jeopardize the fetus. I received plenty of advice about alternative treatments like herbal remedies from family, friends, and the internet, but I felt regretful that I couldn't try them due to the need to prioritize the fetus's safety"* (Participant 3).

Another participant tearfully recounted, *"Considering all the reports, internet articles, and television broadcasts warning about the dangers of COVID-19, including the risk to the mother's life or the possibility of miscarriage... The only recourse I had was to turn to God, entrusting both myself and the fetus to divine care. In the end, it worked, with the assistance of the medical staff and my prayers, even though it was an exceedingly challenging time"* (Participant 13).

A participant shared, *"I experienced a peculiar strength and resilience while battling the illness. However, when I was hospitalized, I lost hope and felt despondent. I didn't believe I would recover, and I mentally prepared myself for any unforeseen outcome, whether for myself or the fetus. However, my resilience eventually prevailed, and I returned to life"* (Participant 10).

### 3.3. Recovery Challenges

The study's participants underscored the

mother's pivotal role as the household manager in effectively navigating life's challenges. These challenges typically commence when the mother falls ill and is subsequently compelled to either undergo quarantine or hospitalization. In addition to shouldering the responsibility for her well-being and that of the developing fetus, she effectively manages the various household tasks, which include caring for other children and tending to her spouse's needs. To prevent a recurrence of the previous circumstances, such as reinfection, she diligently adheres to health protocols and imparts these essential principles to her family. Furthermore, she adopts a range of precautions upon returning home to minimize the risk of transmitting the virus to her household. Health holds profound significance for her, and she earnestly strives to cherish it, recognizing it as a divine gift bestowed by a higher power.

Participants also emphasized the importance of maintaining a positive mindset, actively eschewing negative thoughts, and fostering optimism with the sincere hope of ensuring the birth of a healthy fetus.

One participant reflected upon the complex nature of their lives during the COVID-19 pandemic, stating, *"Our lives became exceedingly intricate with the onset of COVID-19. Following my hospitalization, my life underwent a substantial transformation. I grappled with the dilemma of prioritizing my health or that of others. Eventually, we successfully surmounted all the hardships, and now, to prevent further illness, all family members are compelled to observe many precautions and reorganize their daily routines rigorously"* (Participant 9).

Another participant expressed gratitude, stating, *"I firmly believe that the good health we currently enjoy, particularly during these challenging times, is an invaluable gift from a divine source. I deeply appreciate this blessing"* (Participant 8).

A third participant articulated their approach, saying, *"I make a conscious effort to steer clear of negative thoughts and maintain a positive outlook to ensure the well-being of the developing fetus. I hold steadfast to the hope for a promising future and the eventual birth of a healthy baby"* (Participant 7).

#### 4. Discussion

The present study aimed to assess the lived experiences of pregnant women who had recovered from COVID-19. Data analysis yielded three primary themes discussed and interpreted in this section.

One key finding of the study pertained to the challenges faced by pregnant women concerning their health when dealing with COVID-19. These women often experienced fear, worrying about contracting the virus, and some even contemplated the possibility of severe outcomes, including hospitalization or death. These challenges were intertwined with the experience of quarantine, the struggle to overcome mental health issues, and the burden of coping with death anxiety, all of which had profound effects on both the mother and the unborn child.

In a related context, the results of a qualitative study conducted in Turkey highlighted similar findings, such as heightened anxiety, difficulties, fear, and negative emotional impacts experienced by pregnant women with COVID-19 (12). Similarly, research from Italy revealed that pregnant women with COVID-19 commonly experienced fear, anxiety, and a sense of frustrating loneliness as a consequence of the disease (13). These mothers often had to undergo home quarantine until their recovery or hospitalization due to severe symptoms. Loneliness, isolation, and separation from their families emerged as significant challenges, as supported by the study's findings, aligning with the experiences of pregnant women with COVID-19 (14). Furthermore, patients frequently encountered both physical and psychological problems, reflecting the diverse psychological effects of COVID-19 on pregnant women. These psychological effects could potentially impact fetal development and elevate the risk of adverse outcomes for the baby. Therefore, the thoughts and emotions of women dealing with COVID-19 can significantly influence the physical and mental well-being of pregnant individuals (15).

Consistent with the current study, a conducted study underscored the seriousness of anxiety, depression, and stress during pregnancy as significant public health concerns. The heightened media attention surrounding COVID-19 further exacerbated psychological symptoms in pregnant

women. However, the results of the study also indicated variations in the psychological impact on the mental health of pregnant women, and the potential for long-term mental complications associated with COVID-19 remained a concern for patients (16).

Another noteworthy challenge was the presence of death anxiety, which took a toll on the mental well-being of patients. Notifications of COVID-19-related deaths had the potential to adversely affect the mental health of pregnant women, leading to heightened death anxiety, especially when they were isolated in quarantine or during hospitalization (17). A study conducted in Sri Lanka also pointed to the impact of media coverage of COVID-19-related deaths on pregnant women, resulting in increased death anxiety and affecting their overall well-being (18). Pregnant women who required hospitalization due to COVID-19 often faced feelings of discomfort, depression, anxiety, and fears about the potential consequences for both their unborn children and themselves (19).

During epidemics and pandemics, the most prominent emotional effects on quarantined and hospitalized patients typically encompass fear, loneliness, impatience, anger, and worry (20).

Other findings of the study pertain to the responsibilities concerning the health of the mother and the fetus. Based on their experiences with COVID-19, mothers feel a heightened sense of responsibility for their health to prevent any disease recurrence. Their challenging circumstances have made them acutely aware of the value of good health and have motivated them to maintain it diligently. Even after recovering from the disease, mothers continue to grapple with both positive and negative thoughts about the future of their pregnancy and their well-being. They make concerted efforts to bolster their positive thoughts, both physically and mentally. Preparing for the uncertain future of pregnancy intensifies their commitment to the well-being of the fetus. They strive to maintain their health as diligently as possible, as they perceive the fetus's health to be closely linked to their own. The current state of fetal health is deemed highly significant because any harm during this stage may lead to post-birth complications. In line with this study, a study revealed that maternal responsibility burdens increase when COVID-19 develops, as many challenges threaten the mother.



She safeguards the fetus's health while managing her well-being (21).

The results of a mixed-method study also demonstrated that one of the primary concerns of pregnant women with COVID-19 revolves around the present and future health of their fetus, the potential impact of the virus, and the status of the fetus after birth (22). Pregnant mothers are at a heightened risk of contracting COVID-19, with a greater likelihood of developing pneumonia and experiencing fatal outcomes. During their illness, they face various challenges due to the involvement of multiple organs in their bodies. While they require medications to alleviate their symptoms, they often resist taking them, driven by their sense of responsibility, as these medications may potentially affect the fetus. In this context, the study's results revealed that pregnancy brings forth a sense of responsibility in mothers, compelling them to endure pain and discomfort associated with COVID-19 and refrain from taking medications to protect the fetus (23).

In light of the absence of a definitive cure for COVID-19, one coping mechanism adopted by patients involves turning to faith and spirituality. They seek solace in a higher power, which bolsters their morale and resilience in the face of the disease. The results of the study indicated that COVID-19 in pregnant mothers heightens their stress and anxiety, potentially impacting their immune systems. However, spirituality and belief in a higher deity significantly influence various physiological functions, encompassing the immune, respiratory, cardiovascular, and blood clotting. These beliefs also equip pregnant mothers to better contend with the disease (24).

Another study elucidated that COVID-19 and the fear of its symptoms, coupled with the potential for severe pulmonary complications and mortality, can lead pregnant mothers to draw upon their religious beliefs for strength, thereby enhancing their self-confidence and self-efficacy in managing the disease (25).

Pregnant women also anticipate challenging circumstances during their encounter with COVID-19, and they brace themselves for adverse events. Concerns about their own lives, their baby's health, the adequacy of antenatal care, and social isolation are among the issues they anticipate

confronting (26).

Another study delving into the responsibilities of pregnant mothers focused on post-infection health challenges. After recovering from COVID-19, these mothers adhere to stringent COVID-19 prevention protocols (27). Their commitment extends to safeguarding other family members, including spouses, children, and relatives, from potential infection. Drawing from their experiences with COVID-19, these mothers remain resolute in following prevention guidelines. The novel circumstances that arise after recovery are perceived as precious. These mothers have endured substantial hardships, such as solitude, quarantine, and hospitalization. They recognized the value of these challenges and strive to make the most of the newfound conditions. Their minds are teeming with both positive and negative thoughts, influenced by the influx of information through media and the internet suggesting that COVID-19 infection may affect the fetus (27). They endeavored to dispel the negative thoughts while reinforcing the positive ones to nurture a positive outlook on life. These mothers brace themselves to confront an uncertain future, uncertain about what lies ahead for their fetus following COVID-19 infection and recovery. Given mothers' influential role in family life, their leadership is pivotal in ensuring other family members' health and the pregnancy's success. The study's results underscored that pregnant women, in addition to their primary responsibilities towards themselves and their fetuses, take measures to safeguard other family members to prevent virus transmission (27). Even pregnant women who require hospitalization and regular check-ups, aside from concerns for their own and the fetus's well-being, contend with substantial stress and anxiety to prevent harm to other family members and to avoid introducing new COVID-19-related challenges into their lives (28).

Another significant concern following recovery is the presence of both positive and negative thoughts among pregnant women who have recovered from COVID-19 concerning their future. The absence of maternal support in the effort to shield against COVID-19 infection may have repercussions on various aspects of the mother's life and childbirth, impacting the fetus's future and potentially leading to long-term consequences. Therefore, supporting pregnant women during this period is imperative (29). The uncertainty and the inundation of



alarming information regarding COVID-19 and its consequences contribute to heightened stress and anxiety about the future among pregnant women, adding to the burden for those on the verge of giving birth (30). The study's results emphasized the unknown impact of maternal COVID-19 on the fetus and its future. While the needs and levels of maternal distress concerning the future are not entirely comprehended, it remains crucial to manage both negative and positive thoughts, identify protective strategies, and optimize the mental health of pregnant women during this period (31).

Another primary concern for pregnant women with COVID-19 pertains to their newborn babies, with uncertainties surrounding the potential impact of their illness on the fetus and the infant's future. Within this context, findings from a descriptive-analytical study emphasize that the well-being of the fetus stands as a primary apprehension for pregnant women amid the COVID-19 pandemic (32). Moreover, outcomes from another investigation revealed that, under usual circumstances, expectant mothers grapple with psychological issues that, if unaddressed, may have potential repercussions on their pregnancies. The presence of the COVID-19 pandemic among pregnant women exacerbates feelings of fear, anxiety, and apprehension, all of which cast a pall over the future well-being of the fetus. Consequently, one of the significant challenges faced by pregnant mothers during the COVID-19 pandemic centers on the potential impact on the future health and development of the fetus (33).

#### 4.1. Limitations

One of the limitations of the current study pertains to participants who had recovered from COVID-19, as they conveyed dissatisfaction when recounting the challenges they experienced during their infection. They harbored lingering concerns regarding potential future issues for their offspring, and the paucity of adequate information to address these concerns engendered feelings of anxiety and apprehension. Consequently, this emotional state hindered their ability to respond comprehensively to the interview questions.

Furthermore, the interviews were constrained in duration to enable ongoing monitoring of the participant's health status. Diligent efforts were

undertaken to conduct these interviews during periods of relatively sound health, and endeavors were made to augment the number of interviews. Nonetheless, the brevity of the interviews may still have exerted some influence. The researcher also disclosed her negative PCR test result to reassure participants. Nevertheless, some participants declined to participate in the interviews due to apprehensions about potential reinfection, a decision made to safeguard their contentment and forestall any possible compromise in the quality of the interviews.

## 5. Conclusion

Pregnant women face an elevated risk of contracting the disease amidst a pandemic. Throughout this phase, while contending with the ailment, they endure a multitude of symptoms of anxiety and depression. These mental health challenges are significantly intertwined with COVID-19-specific concerns, encompassing apprehensions about their survival, the well-being of their offspring, the adequacy of prenatal care, and the burden of social isolation. Even after convalescence, they continue to grapple with a myriad of psychological tribulations related to the welfare and prospects of their fetus and their overall pregnancy journey. These individuals necessitate heightened care during both the illness and the recuperative phase.

Subsequently, healthcare policymakers specializing in the realm of maternal health, alongside obstetricians and midwives, should glean insights from the ordeals of pregnant women. They must undertake proactive measures to augment the caliber of healthcare furnished to these maternal figures, the fetus, and the neonate. Given the extensively documented and yet-to-be-fully elucidated repercussions of COVID-19 on pregnancy outcomes, as well as on neonates and offspring, there exists an exigent imperative to bolster pregnant women's support during this pivotal period to ameliorate potential long-term deleterious ramifications. It is strongly recommended that medical facilities institute vigilant monitoring of pregnant women after their convalescence from COVID-19 throughout the remainder of their pregnancies.

## Ethical Approval

Ethical approvals were obtained from the

Ethics Committee of Zabol University of Medical Sciences with the code of IR.ZBMU.REC.1400.013. All participants received both verbal and written information about the study. They were informed about guaranteed confidentiality, voluntary participation, and the right to discontinue their involvement at any time without any adverse consequences. Each participant signed a written informed consent form before participating in an interview.

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### Authors' Contribution

Khadije Rezaie-Kheikhaie: Conceive and design the research, critical revision of the manuscript. MarieHastings-Tolsma: Contribution to the concept of the work, critical revision of the manuscript and supervision. Mohammadreza Firouzkouhi: Conceive and design the research, draft the manuscript, Abdolghani Abdollahimohammad: Contribution to the concept of the work, critical revision of the manuscript. Fatemeh Mirzaie: Contribution to the concept of the work, critical revision of the manuscript. All authors approved of the final version to be published, and agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

**Conflict of Interest:** None declared.

### References

1. Dashraath P, Wong JJJ, Lim MXK, Lim LM, Li S, Biswas A, Choolani M, et al. Coronavirus disease 2019 (COVID-19) pandemic and pregnancy. *Am J Obstet Gynecol.* 2020;222(6):521-531. doi: 10.1016/j.ajog.2020.03.021. PubMed PMID: 32217113; PubMed Central PMCID: PMC7270569.
2. Mimouni F, Lakshminrusimha S, Pearlman SA, Raju T, Gallagher PG, Mendlovic J. Perinatal aspects on the covid-19 pandemic: a practical resource for perinatal-neonatal specialists. *J Perinatol.* 2020;40(5):820-826. doi: 10.1038/s41372-020-0665-6. PubMed PMID: 32277162; PubMed Central PMCID: PMC7147357.
3. Yang H, Wang C, Poon LC. Novel coronavirus infection and pregnancy. *Ultrasound Obstet Gynecol.* 2020;55(4):435-437. doi: 10.1002/uog.22006. PubMed PMID: 32134165; PubMed Central PMCID: PMC7169856.
4. Poon LC, Yang H, Dumont S, Lee JCS, Copel JA, Danneels L, et al. ISUOG Interim Guidance on coronavirus disease 2019 (COVID-19) during pregnancy and puerperium: information for healthcare professionals - an update. *Ultrasound Obstet Gynecol.* 2020;55(6):848-862. doi: 10.1002/uog.22061. PubMed PMID: 32356590; PubMed Central PMCID: PMC7267438.
5. Muhammad M. COVID-19: Pregnant women face higher risk of death. Available from: <https://www.aa.com.tr/en/latest-on-coronavirus-outbreak/covid-19-pregnant-women-face-higher-risk-of-death/2218584>.
6. Lassi ZS, Ana A, Das JK, Salam RA, Padhani ZA, Irfan O, et al. A systematic review and meta-analysis of data on pregnant women with confirmed COVID-19: Clinical presentation, and pregnancy and perinatal outcomes based on COVID-19 severity. *J Glob Health.* 2021;11:05018. doi: 10.7189/jogh.11.05018. PubMed PMID: 34221361; PubMed Central PMCID: PMC8248750.
7. Lokken EM, Walker CL, Delaney S, Kachikis A, Kretzer NM, Erickson A, et al. Clinical characteristics of 46 pregnant women with a severe acute respiratory syndrome coronavirus 2 infection in Washington State. *Am J Obstet Gynecol.* 2020;223(6):911.e1-911.e14. doi: 10.1016/j.ajog.2020.05.031. PubMed PMID: 32439389; PubMed Central PMCID: PMC7234933.
8. Rasmussen SA, Smulian JC, Lednicky JA, Wen TS, Jamieson DJ. Coronavirus Disease 2019 (COVID-19) and pregnancy: what obstetricians need to know. *Am J Obstet Gynecol.* 2020;222(5):415-426. doi: 10.1016/j.ajog.2020.02.017. PubMed PMID: 32105680; PubMed Central PMCID: PMC7093856.
9. Burrns N, Grove KC. Understanding research. Philadelphia: W.B Saunders, 2011.
10. Coliazzi P. Psychological research as the phenomenologist views it. In Valle RS, King M, editors. *Existential Phenomenological*

- Alternatives for Psychology. New York: Oxford University Press; 1987.
11. Lincoln YS, Guba EG. *Naturalistic Inquiry*. CA: Sage Publications; 1985.
  12. Salehi L, Rahimzadeh M, Molaei E, Zaheri H, Esmaelzadeh-Saeieh S. The relationship among fear and anxiety of COVID-19, pregnancy experience, and mental health disorder in pregnant women: A structural equation model. *Brain Behav.* 2020;10(11):e01835. doi: 10.1002/brb3.1835. PubMed PMID: 32969190; PubMed Central PMCID: PMC7536966.
  13. Ravaldi C, Wilson A, Ricca V, Homer C, Vannacci A. Pregnant women voice their concerns and birth expectations during the COVID-19 pandemic in Italy. *Women Birth.* 2021;34(4):335-343. doi: 10.1016/j.wombi.2020.07.002. PubMed PMID: 32684343; PubMed Central PMCID: PMC7357495.
  14. Fumagalli S, Ornaghi S, Borrelli S, Vergani P, Nespoli A. The experiences of childbearing women who tested positive to COVID-19 during the pandemic in northern Italy. *Women Birth.* 2022;35(3):242-253. doi: 10.1016/j.wombi.2021.01.001. PubMed PMID: 33451929; PubMed Central PMCID: PMC7796658.
  15. Kumari A, Ranjan P, Sharma KA, Sahu A, Bharti J, Zangmo R, et al. Impact of COVID-19 on psychosocial functioning of peripartum women: A qualitative study comprising focus group discussions and in-depth interviews. *Int J Gynaecol Obstet.* 2021;152(3):321-327. doi: 10.1002/ijgo.13524. PubMed PMID: 33305351; PubMed Central PMCID: PMC9087625.
  16. Patabendige M, Gamage MM, Weerasinghe M, Jayawardane A. Psychological impact of the COVID-19 pandemic among pregnant women in Sri Lanka. *Int J Gynaecol Obstet.* 2020;151(1):150-153. doi: 10.1002/ijgo.13335. PubMed PMID: 32731307; PubMed Central PMCID: PMC9087773.
  17. Durankuş F, Aksu E. Effects of the COVID-19 pandemic on anxiety and depressive symptoms in pregnant women: a preliminary study. *J Matern Fetal Neonatal Med.* 2022;35(2):205-211. doi: 10.1080/14767058.2020.1763946. PubMed PMID: 32419558.
  18. Liu X, Chen M, Wang Y, Sun L, Zhang J, Shi Y, et al. Prenatal anxiety and obstetric decisions among pregnant women in Wuhan and Chongqing during the COVID-19 outbreak: a cross-sectional study. *BJOG.* 2020;127(10):1229-1240. doi: 10.1111/1471-0528.16381. PubMed PMID: 32583536; PubMed Central PMCID: PMC7362035.
  19. Sade S, Sheiner E, Wainstock T, Hermon N, Yaniv Salem SY, Kosef T, et al. Risk for Depressive Symptoms among Hospitalized Women in High-Risk Pregnancy Units during the COVID-19 Pandemic. *J Clin Med.* 2020;9(8):2449. doi: 10.3390/jcm9082449. PubMed PMID: 32751804; PubMed Central PMCID: PMC7464613.
  20. Ahmed MZ, Ahmed O, Aibao Z, Hanbin S, Siyu L, Ahmad A. Epidemic of COVID-19 in China and associated psychological problems. *Asian J Psychiatr.* 2020;51:102092. doi: 10.1016/j.ajp.2020.102092. PubMed PMID: 32315963; PubMed Central PMCID: PMC7194662.
  21. Schwartz DA. An Analysis of 38 Pregnant Women With COVID-19, Their Newborn Infants, and Maternal-Fetal Transmission of SARS-CoV-2: Maternal Coronavirus Infections and Pregnancy Outcomes. *Arch Pathol Lab Med.* 2020;144(7):799-805. doi: 10.5858/arpa.2020-0901-SA. PubMed PMID: 32180426.
  22. Rhodes A, Kheireddine S, Smith AD. Experiences, Attitudes, and Needs of Users of a Pregnancy and Parenting App (Baby Buddy) During the COVID-19 Pandemic: Mixed Methods Study. *JMIR Mhealth Uhealth.* 2020;8(12):e23157. doi: 10.2196/23157. PubMed PMID: 33264100; PubMed Central PMCID: PMC7732354.
  23. Zhao X, Jiang Y, Zhao Y, Xi H, Liu C, Qu F, et al. Analysis of the susceptibility to COVID-19 in pregnancy and recommendations on potential drug screening. *Eur J Clin Microbiol Infect Dis.* 2020;39(7):1209-1220. doi: 10.1007/s10096-020-03897-6. PubMed PMID: 32328850; PubMed Central PMCID: PMC7178925.
  24. Wastnedge EA, Reynolds RM, van Boeckel SR, Stock SJ, Denison FC, Maybin JA, et al. Pregnancy and COVID-19. *Physiol Rev.* 2021;101(1):303-318. doi: 10.1152/physrev.00024.2020. PubMed PMID: 32969772; PubMed Central PMCID: PMC7686875.
  25. Nodoushan RJ, Alimoradi H, Nazari M. Spiritual Health and Stress in Pregnant Women During the Covid-19 Pandemic. *SN Compr Clin Med.* 2020;2(12):2528-2534. doi: 10.1007/s42399-020-00582-9. PubMed PMID: 33083694; PubMed Central PMCID: PMC7561430.

26. Lebel C, MacKinnon A, Bagshawe M, Tomfohr-Madsen L, Giesbrecht G. Elevated depression and anxiety symptoms among pregnant individuals during the COVID-19 pandemic. *J Affect Disord.* 2020;277:5-13. doi: 10.1016/j.jad.2020.07.126. 2021;279:377-379. PubMed PMID: 32777604; PubMed Central PMCID: PMC7395614.
27. Salehi L, Rahimzadeh M, Molaei E, Zaheri H, Esmaelzadeh-Saeieh S. The relationship among fear and anxiety of COVID-19, pregnancy experience, and mental health disorder in pregnant women: A structural equation model. *Brain Behav.* 2020;10(11):e01835. doi: 10.1002/brb3.1835. PubMed PMID: 32969190; PubMed Central PMCID: PMC7536966.
28. Wang C, Pan R, Wan X, Tan Y, Xu L, Ho CS, et al. Immediate Psychological Responses and Associated Factors during the Initial Stage of the 2019 Coronavirus Disease (COVID-19) Epidemic among the General Population in China. *Int J Environ Res Public Health.* 2020;17(5):1729. doi: 10.3390/ijerph17051729. PubMed PMID: 32155789; PubMed Central PMCID: PMC7084952.
29. Davis-Floyd R, Gutschow K, Schwartz DA. Pregnancy, Birth and the COVID-19 Pandemic in the United States. *Med Anthropol.* 2020;39(5):413-427. doi: 10.1080/01459740.2020.1761804. PubMed PMID: 32406755.
30. Thibaut F, van Wijngaarden-Cremers PJM. Women's Mental Health in the Time of Covid-19 Pandemic. *Front Glob Womens Health.* 2020;1:17. doi: 10.3389/fgwh.2020.588372.
31. Chivers BR, Garad RM, Boyle JA, Skouteris H, Teede HJ, Harrison CL. Perinatal Distress During COVID-19: Thematic Analysis of an Online Parenting Forum. *J Med Internet Res.* 2020;22(9):e22002. doi: 10.2196/22002. PubMed PMID: 32857707; PubMed Central PMCID: PMC7481017.
32. Effati-Daryani F, Zarei S, Mohammadi A, Hemmati E, Ghasemi Yngyknd S, Mirghafourvand M. Depression, stress, anxiety and their predictors in Iranian pregnant women during the outbreak of COVID-19. *BMC Psychol.* 2020;8(1):99. doi: 10.1186/s40359-020-00464-8. PubMed PMID: 32962764; PubMed Central PMCID: PMC7506842.
33. Castro P, Narciso C, Matos AP, Werner H, Araujo Júnior E. Pregnant, uninfected, stressed, and confined in the COVID-19 period: what can we expect in the near future? *Rev Assoc Med Bras.* 2020;66(4):386-387. doi: 10.1590/1806-9282.66.4.386. PubMed PMID: 32578764.