

Hesitations, Views and Experiences of Pregnant Women Infected with COVID-19 About Vaccines: A Qualitative Study*

COVID-19 ile Enfekte Olmuş Gebe Kadınların Aşıya Yönelik Tereddütleri, Görüşleri ve Deneyimleri; Türkiye'den Nitel Bir Çalışma

Rukiye Sülü Dursun

Doktora Öğrencisi, Çukurova Üniversitesi, Sağlık Bilimleri Enstitüsü Ebelik Anabilim Dalı
ORCID: 0000-0003-1093-4635 E-posta: rkysulu@gmail.com

Ebru Gözüyesil

Doçent Doktor, Çukurova Üniversitesi, Sağlık Bilimleri Fakültesi Ebelik Anabilim Dalı
ORCID: 0000-0002-9193-2182

Şule Gökyıldız Sürücü

Profesör-Doktor, Çukurova Üniversitesi, Sağlık Bilimleri Fakültesi Ebelik Anabilim Dalı
ORCID: 0000-0002-0088-4219

Burcu Avcıbay Vurgeç

Doçent Doktor, Çukurova Üniversitesi, Sağlık Bilimleri Fakültesi Ebelik Anabilim Dalı
ORCID: 0000-0003-2467-5101

Geliş Tarihi: 23 Aralık 2024, Kabul Tarihi: 6 Şubat 2025

*Bu çalışma, 21-23 Aralık 2023 2. Uluslararası 3. Ulusal Kadın Sağlığı Hemşireliği Kongresi'nde sözel bildiri olarak sunulmuş, özet metin olarak yayımlanmıştır.

ABSTRACT

Background and Objective: Drug and vaccine studies have been carried out to control the COVID-19 pandemic, which has affected the whole world. With the development of COVID-19 vaccines and their widespread use in countries, rates of severe illness and death have decreased. Since pregnant women have a higher risk of hospitalization and severe disease, the most effective method of protection against COVID-19 infection is vaccination. However, with the pandemic, the impact of the epidemic on vaccine studies, access to vaccines, supply and distribution, determination of priority groups, patent problems in vaccines, vaccine hesitancy or opposition constitute the main ethical problem groups. This study utilized a qualitative study design to determine the vaccine-related hesitations, views and experiences of pregnant women who were infected with COVID-19 in Türkiye.

Material and Methods: Eighteen women infected with COVID-19 were interviewed using the semi-structured interview technique.

Results: The data obtained were analyzed using qualitative thematic and content analysis methods, which revealed 3 main themes and 7 sub-themes. The main themes were determined as Fear (1), Experiences (2), and Social Support (3).

Conclusion: *The results showed that pregnant women experienced fear due to distrust of vaccines, beliefs about the inadequacy of vaccine research, and concerns about fetus health, while those who were infected reported to experience severe symptoms and develop positive attitudes toward vaccines when they communicated with the health personnel. Besides, partner support was found to be effective in developing positive attitudes toward vaccines.*

Keywords: Covid-19, medical ethics, pregnant women, qualitative research, vaccines

ÖZET

Arka Plan ve Amaç: *Tüm dünyayı etkisi altına alan COVID-19 pandemisini kontrol altına almak amacıyla ilaç ve aşı çalışmaları yapılmıştır. COVID-19 aşılarının geliştirilmesi ve ülkelerde yaygın kullanıma girmesi ile beraber ağır hastalık ve ölüm oranları azalmıştır. Gebe kadınlarda hastaneye yatış ve ağır hastalık görülme riski daha yüksek olduğu için COVID-19 enfeksiyonuna karşı en etkili korunma yöntemi aşılardır. Ancak pandemiyle birlikte salgının aşı çalışmalarına etkisi, aşıya erişim, tedarik ve dağıtım, öncelikli grupların belirlenmesi, aşılarda patent sorunu, aşı kararsızlığı veya karşıtlığı başlıca etik sorun kümelerini oluşturmaktadır. Bu çalışma, Türkiye’de COVID-19 ile enfekte olmuş gebe kadınların aşıya yönelik görüşleri, deneyimleri ve tereddütlerini belirlemek amacıyla nitel çalışma deseninde yürütülmüştür.*

Gereç ve Yöntem: *Yarı yapılandırılmış görüşme tekniği kullanılarak 18 COVID-19 ile enfekte olmuş gebe kadın ile görüşme sağlanmıştır.*

Bulgular: *Elde edilen veriler nitel tematik ve içerik analizi ile değerlendirilmiştir. Çalışmanın içerik analizi sonucunda 3 ana tema ve 7 alt tema belirlenmiştir. Belirlenen ana temalar şunlardır: (1) Korku, (2) Deneyimler, (3) Sosyal destek. Her tema ayrı ayrı tartışılmıştır.*

Sonuç: *Bu çalışma sonucunda, gebe kadınların, aşıya karşı güvensizlik, aşı çalışmalarının yetersiz olduğuna inanma ve fetal sağlığa ilişkin kaygılar nedeniyle korku yaşamıştır. COVID-19 ile enfekte olmuş gebe kadınların semptomları ağır yaşama ve sağlık profesyonelleri ile iletişim kurduklarında aşıya yönelik olumlu tutum geliştirmiştir. Ayrıca aşıya karşı olumlu tutum geliştirmesinde sosyal medyanın ve eş desteğinin etkili olduğu belirlenmiştir.*

Anahtar Kelimeler: Covid-19, tıp etiği, gebe kadın, nitel çalışma, aşı

INTRODUCTION

The World Health Organization (WHO) declared COVID-19 as a pandemic on the 11th of March, 2020 (1). Research and development studies on the COVID-19 vaccine conducted worldwide aimed to bring the pandemic under control, and nine vaccines have been approved so far (2). However, the WHO does not find the proportion of people vaccinated against COVID-19 adequate (3). People’s approach to vaccines is affected by various factors such as incorrect information about the efficiency of vaccines, distrust of the countries where the vaccines were developed, and conspiracy theories (4,5). As to pregnant women, their approach to vaccines is affected by factors such as infection risk, vaccine safety hesitance, the necessity of vaccines, and the probability of any harm to their pregnancy and babies (6-8). Due to the physiological changes in the immunity system, the risk of viral respiratory tract infections increases, and the symptoms of these diseases are experienced more severely during pregnancy (9). The risk of hospitalization and experience of severe disease is more common in pregnant women compared to nonpregnant women. Preterm birth and low birth weight newborn are more common in pregnant women who have COVID-19 infection compared to those who do not (10). Vaccines are the most effective protection method against infections (11,12). This reason, the importance of being vaccinated is highlighted for pregnant women who have not been vaccinated before (13). On the other hand, even if they were vaccinated against COVID-19 before getting pregnant (7), some pregnant women could hesitate to have the booster dose or refuse vaccines due to the fear of harming their pregnancy and fetus (14).

The Center for Disease Control and Prevention highlights the importance of having vaccines against COVID-19 in terms of both maternal and fetus/newborn health. Pregnant or breastfeeding women are recommended to be vaccinated against COVID-19 (15). Other international institutions also recommend that women planning pregnancy/pregnant women and breastfeeding women should get vaccinated against COVID-19 (16-18).

With vaccines developed in record time after the start of the COVID-19 pandemic, the pandemic has been significantly brought under control. However, with the pandemic, the impact of the epidemic on vaccine studies, access to vaccines, supply and distribution, determination of priority groups, patent problems in vaccines, vaccine hesitancy or opposition constitute the main ethical problem groups. It is important to determine the opinions, experiences and hesitations of pregnant women infected with COVID-19 regarding the vaccine in Türkiye. The literature includes a limited number of studies that reported pregnant women's views about vaccination against COVID-19 (14,19). Determination of vaccine-related hesitations, views and experiences of pregnant women infected with COVID-19, considered to be a high-risk group, is considered to provide an important contribution to the literature. The purpose of this study is to investigate vaccine-related views and experiences of pregnant women in Türkiye infected with COVID-19 during the pandemic.

METHODOLOGY

Study Design

This study utilized a phenomenological approach based on the method developed by Braun, Clarke and Weate (20). This method is commonly utilized in health research (21). Standards for Reporting Qualitative Research (SRQR) were followed while implementing the study and reporting the results (22). The study was conducted between November 1, 2022 and February 20, 2023 with pregnant women who had COVID-19 infection and sought treatment in the Gynecology and Obstetrics outpatient clinics.

Sample

The sample of the study was women who agreed to participate in the study, lived in Türkiye, could communicate in Turkish, were infected with COVID-19 during pregnancy, were aged over 18 years old, and did not have any contraindications for vaccination against COVID-19. Face-to-face interviews were voice-recorded in order to determine the vaccine views and experiences of pregnant women who lived in Adana, Türkiye, and were infected with COVID-19 anytime during the pandemic period. Women who met the inclusion criteria responded to the questions in the forms, all of which were filled in by the researchers RD/EG. The sample group to be included in the study was accessed using the snowball sampling method. Interviews were conducted with pregnant women who were infected with COVID-19, who were not known to the researchers, and who were not from their environment. The next participant was accessed by asking the interviewed women "Can you suggest someone whom you think we can interview about this issue?" (23). "Saturation" is an important guide in determining the sample size in qualitative studies (24). The sample size is considered sufficient when the information and similar statements given by the participants begin to repeat frequently. The interviews conducted with 18 women indicated data saturation, and the data collection phase was completed. The data collection and analysis phases of this study were completed within three weeks following the ethics committee approval (Table 1).

Table 1. Findings of the Participants' Various Characteristics

n	Age	Education Level	Working or not	Parity	Family Structure	Gestational Week when the pregnant woman tested positive	Having been vaccinated against COVID-19 before pregnancy	Having been vaccinated against COVID-19 during pregnancy
1	30	Undergraduate Degree	Working	Multiparous	Nuclear Family	12th Week	No	No
2	26	High School	Housewife	Primiparous	Nuclear Family	30th Week	No	Yes
3	33	Undergraduate Degree	Working	Multiparous	Nuclear Family	34th Week	Yes	No
4	27	Undergraduate Degree	Working	Primiparous	Nuclear Family	14th Week	Yes	Yes
5	30	Master's Degree	Working	Primiparous	Nuclear Family	17th Week	Yes	Yes
6	27	Master's Degree	Working	Primiparous	Nuclear Family	30th Week	Yes	Yes
7	24	High School	Working	Primiparous	Nuclear Family	16th Week	Yes	No
8	26	Undergraduate Degree	Housewife	Primiparous	Nuclear Family	12th Week	Yes	No
9	32	High School	Working	Multiparous	Nuclear Family	22nd Week	Yes	Yes
10	40	Undergraduate Degree	Working	Primiparous	Nuclear Family	14th Week	Yes	Yes
11	38	Associate Degree	Housewife	Multiparous	Nuclear Family	34th Week	No	No
12	26	Undergraduate Degree	Working	Primiparous	Nuclear Family	20th Week	No	No
13	36	Associate Degree	Housewife	Multiparous	Nuclear Family	38th Week	Yes	No
14	30	Secondary School	Housewife	Multiparous	Nuclear Family	38th Week	No	No
15	28	Undergraduate Degree	Working	Primiparous	Nuclear Family	26th Week	Yes	No
16	24	Undergraduate Degree	Working	Primiparous	Nuclear Family	18th Week	Yes	Yes
17	34	Master's Degree	Working	Multiparous	Nuclear Family	24th Week	Yes	No
18	31	Master's Degree	Working	Multiparous	Nuclear Family	36th Week	Yes	No

Study Setting

The pregnant women infected with COVID-19 were selected from Adana city, which is located in southern Türkiye.

Data Collection

Data were collected using a questionnaire form which included 9 close-ended questions about pregnant women's socio-demographic, obstetric, and general characteristics about the issue and four semi-structured questions that investigated the participants' views and experiences about vaccines against COVID-19 (14,19). Initially, expert opinions were received for the content validity of the questions in the questionnaire form regarding the content, order, and comprehensibility of the questions (one lecturer from the field of Educational Sciences, two lecturers from the

field of Midwifery, and one expert from the field of Statistics). Two interview questions were changed after the expert opinions were received. The interviews were conducted face to face.

The questionnaire prepared based on the literature included three sections (14,19). While the first section included questions about socio-demographic features, the second section included questions about obstetric features. The last section was composed of questions that determined participants' views and experiences about vaccines against COVID-19 in the pregnancy process experienced during the coronavirus pandemic (What do you think about the coronavirus? How did this condition affect you? What do you think about pregnant women being vaccinated against COVID-19? Have you been vaccinated against COVID-19? How did you spend your pregnancy process during the pandemic?). Other participants of the study were accessed after the first participant was accessed by the researchers. The researchers were given telephone numbers and names of other women suggested by the participants. All the women who were interviewed had been previously informed about the study by the participant who suggested them. While one of the researchers conducted the interviews, the other researcher performed the voice recording and took notes about her observations (participants' reactions, tone of voice, important notes about interviews, etc.). The interviews took about 20-25 minutes.

Analysis

The study utilized an inductive analytical approach and followed Braun, Clarke and Weate's six-step process: familiarization, coding, generating themes, reviewing themes, defining, naming themes, and writing up (20). Initially, voice recordings obtained from the interviews were transcribed. The written data were transferred into MAXQDA 2020 program (25). An inductive approach was utilized for the analysis of the data transferred to the MAXQDA 2020 program. Data were read repeatedly and the initial codes were formed. The related codes were collected under themes and given titles. Then the obtained themes were explained in a way to be understood by the readers. Finally, the researcher interpreted the findings to give them meaning and supported them with various visuals. Table 2 presents the themes and sub-themes obtained from the study data.

Limitations

This study is limited to 18 pregnant women infected with COVID-19. Since the pregnant women's verbal and nonverbal expressions were analyzed qualitatively, the results of the study cannot be generalized. Collecting data from only one city and interviewing each participant only once are also limitations of the study.

Ethical considerations

Ethics approval was obtained from the Scientific Research and Publication Ethics Committee of Çukurova University (Number:2022.10.07/28-126; Date: October 22, 2022). Pregnant women who were accessed were given information about the purpose of the study as well as the confidentiality of the data collected. They were assured that participation was on a voluntary basis and that they could withdraw from the study anytime they wanted.

RESULTS

Table 2. Themes and Sub-themes regarding the views and experiences of COVID-19 (+) pregnant women

Main Themes	Sub-themes
Fear	Distrust of Vaccines Beliefs about the inadequacy of vaccine research Concerns about Fetus Health
Experiences	Experience of Severe Symptoms Communication with the Health Professionals
Social Support	Social Media Support Partner Support

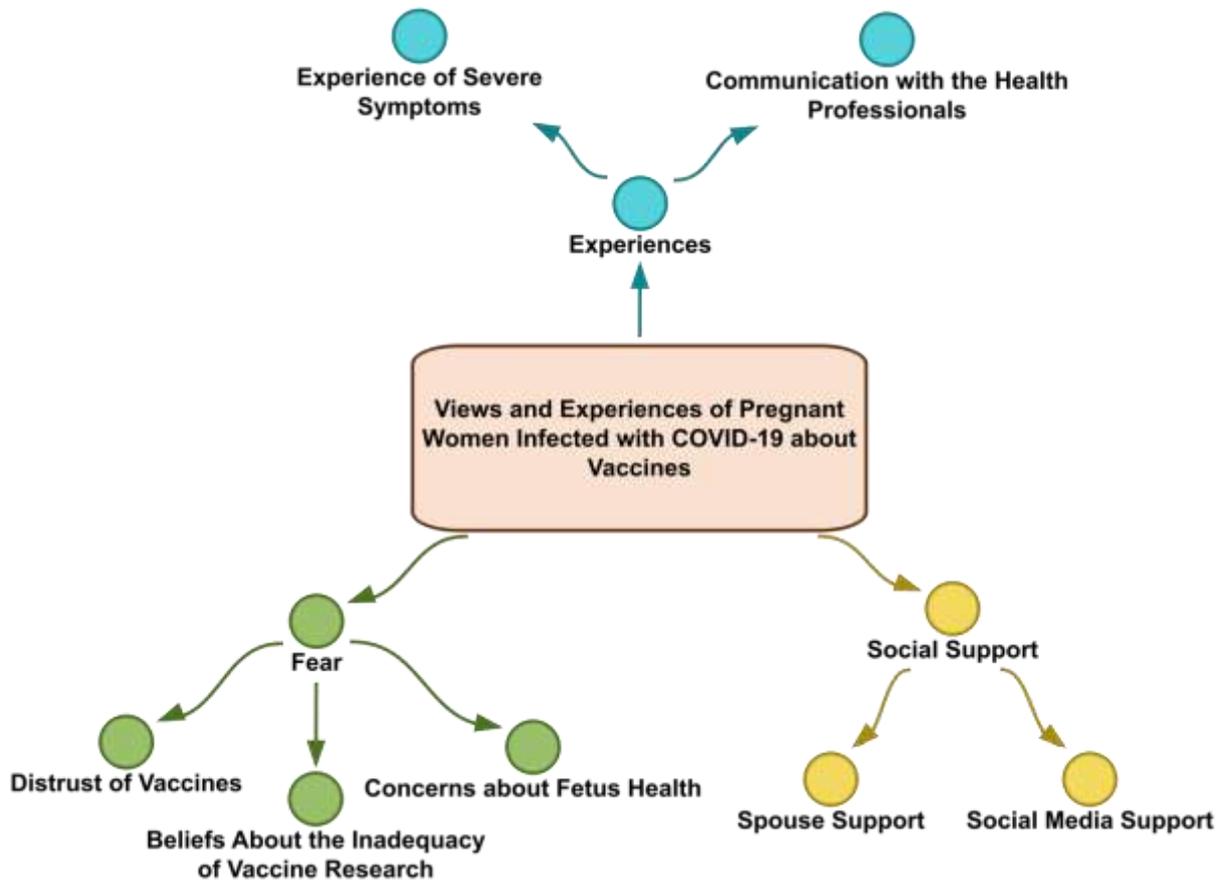


Figure 1. Themes and sub-themes.

Fear

While five participants reportedly were not vaccinated before pregnancy, 10 participants were not vaccinated during pregnancy. Fear was found to be one of the factors that had effects on this proportion. It was found that fear was caused by distrust of vaccine content, the inadequacy of vaccine trial research, and potential uncertainty about the effects on fetal health.

Distrust of vaccines

The participants stated that although all communication channels constantly broadcasted various news about the course and effects of the disease and solutions to it in the pandemic process, vaccine research was conducted rapidly with the efforts of a limited number of countries, which caused them to experience fear. Although individuals do not

reject vaccines in the routine immunization program, due to the distrust of vaccines against COVID-19, they were found to prefer not to be vaccinated. Reasons for the distrust of vaccines were determined as distrust of the countries that developed the vaccine and distrust of the vaccine content.

“I was not vaccinated against COVID. I found the research done inadequate. I did not trust the content of the vaccine. I do not trust particularly in the vaccines found by other countries, and this makes me scared. Maybe if it had been produced in our country, I would have been vaccinated...” (P1)

The reasons for the distrust of the vaccine content were indicated as disease antigens within the vaccine content or the general live virus nature of the vaccine.

“Of course, I am scared because I have not been vaccinated, but I did not trust the viruses in the COVID-19 vaccine. I thought it could harm my fetus. When I became ill, I thought I wished I had been vaccinated.” (P1)

“I am afraid of particularly live virus vaccines, but I felt regretful. I could have pulled through the COVID infection more easily.” (P3)

Beliefs about the Inadequacy of Vaccine Research

The participants stated that they thought vaccine research was inadequate; therefore, they feared that their fetus might get harmed, so they refused to get vaccinated during the pregnancy process.

“...I wish I had been vaccinated. I was not. I did not trust the vaccine. Its production in such a short time caused me to feel worried.” (P3)

“I find getting vaccinated during pregnancy risky because I believe that research was inadequate. It was my personal decision. Others were vaccinated, but I preferred not to be vaccinated.” (P12)

“I read news on the internet a lot. It says the research done is not adequate, so I do not trust the COVID vaccine.” (P7)

Concerns about Fetus Health

Being infected during the pandemic was found to cause a common fear in participating pregnant women. They reportedly felt worried about their fetus more than themselves. During the pandemic process, pregnant women generally experienced fear due to both being ill and getting vaccinated against the disease. Although the news they watched indicated positive things about fetus health, some participants preferred not to be vaccinated.

“I heard that babies were not affected. The news showed that the mother's vaccination did not affect the fetus. Nevertheless, I was not vaccinated during pregnancy. There is a need for more research.” (P7)

“I have never been vaccinated. I have never thought about being vaccinated. Even if I had been vaccinated, I would not do it during pregnancy. I feel like it gives harm to my fetus.” (P12)

Those who reported to have been vaccinated before pregnancy were found to prefer not to have the booster dose with the concern that their fetus would get harmed.

“I had been vaccinated twice before getting pregnant, but it had been almost 10 months. The booster dose was defined in the system when I was pregnant. I did not have the booster dose. I felt regretful. I wish I had had it; maybe then I would not have suffered this much. I feared for my fetus.” (P18)

Experiences

The participants who experienced the disease during the pregnancy period reported to feel regretful for not having been vaccinated. The severity of the course of the disease was particularly effective in this regret.

Experience of Severe Symptoms

The majority of the participants reported that their immunity was low during pregnancy, and being infected with the COVID-19 virus affected them more in comparison to other individuals. Some participants stated that during the COVID-19 disease process, they felt guilty and regretful due to not being vaccinated, particularly for their fetuses.

“The disease was very severe. I felt too bad; I was sick in bed all the time. My taste was not lost completely, but it decreased. My voice was hoarse. I was producing secretion. I am very regretful for not having been vaccinated during my pregnancy.” (P3)

One of the participants reported that she was not vaccinated against COVID-19 during pregnancy and received treatment in the intensive care unit after being infected.

“I was infected with COVID because I was not vaccinated during pregnancy. I received treatment in the intensive care unit. I had very hard times for 46 days. Nothing is as easy as they show it on TV. Being in the intensive care unit is so difficult; the unit is full of unvaccinated patients with COVID. It is not only for pregnant women; everybody should be vaccinated. No one should be left unvaccinated.” (P11)

Another participant who had a severe disease process planned to get vaccinated, but she reportedly did not give enough importance to it.

“I was 9 weeks pregnant when I was going to have my 3rd booster dose. My doctor had recommended getting vaccinated, but according to my own research and the things I read, we can get vaccinated after the 14th week. Hence, getting vaccinated in the 9th week seemed to be early to me. Then when I was 14 weeks pregnant, I was not sure about getting vaccinated or not; we had a vacation at the weekend. I was not vaccinated. I did not give importance to the booster dose. I wish I had been vaccinated. I think pregnant women should not ignore getting vaccinated. The consequences can be very severe...” (P8)

Communication with Health Professionals

The participants stated that they consulted health professionals before they were vaccinated against COVID-19, and they decided to be vaccinated because they heard positive things about vaccines. Particularly midwives' comments helped decrease participants' vaccine hesitations.

“My doctor recommended me to be vaccinated in the first months. The news told that pregnant women could also be vaccinated. Everyone around me was telling something different. I listened to my doctor and midwife.” (P4)

“I trust scientists, doctors, and midwives; they say it has no harm for the fetus. Therefore, I think being vaccinated has no harm for the fetus. I was vaccinated, but I still got COVID.” (P9)

“I was vaccinated. Maybe thanks to this, I was not hospitalized. Things might have been more difficult. I will have my third dose of the vaccine after delivery. My midwife in the Family Health Center had already given information about vaccines. She said the vaccine would not harm the fetus and was recommended by the Ministry of Health. I consulted my doctor, and my doctor also said I could be vaccinated. I had my COVID vaccine with no hesitations.” (P6)

Although they were not vaccinated, the participants stated that health professionals' caring attitudes could have been effective in vaccination decisions.

“My midwife in the Family Health Center called me to say that my vaccine was defined in the system and asked if I was interested. I went to get vaccinated. I filled in the vaccine form, but unfortunately, I gave up at the last moment.

I am so regretful. I wish I had been vaccinated. I went through a very difficult process. It is not like the normal flu; its symptoms are very severe.” (P14)

Social Support

Some of the participants stated that they demonstrated positive attitudes towards the COVID-19 vaccine during pregnancy; they had been vaccinated before pregnancy; and they also received their booster doses during pregnancy. All the participants who were vaccinated during pregnancy said that they did not expect to be infected with COVID-19 and advocated that they experienced mild symptoms because they had been vaccinated against COVID-19.

Social media support

Social media was found to be an effective tool for developing positive attitudes toward vaccines. Half of the participants who were vaccinated during pregnancy advocated that social media had a positive effect on eliminating vaccine hesitations.

The participants, particularly those who had pre-term birth, stated that they were affected by the news showing that the newborns of pregnant women infected with COVID were taken to the intensive care unit.

“I heard that being vaccinated in the first months is harmful to the fetus. Seeing pregnant women being vaccinated on the news gave me courage about vaccination. I had not been vaccinated before my pregnancy, but I was vaccinated against COVID-19 during pregnancy. At least I did not go through a difficult process even if I had been diagnosed with COVID.” (P2)

“I had been vaccinated before pregnancy. The booster dose coincided with my pregnancy. I was vaccinated against COVID-19 because the news and the doctors I followed on Instagram recommended vaccines... The news showing that the newborns of mothers infected with the disease were taken to intensive care was so sad.” (P5)

Partner support

The participants stated that their partners searched about the safety of the COVID-19 vaccine during the pregnancy process. The majority of the participants who were vaccinated during pregnancy stated that they received the greatest support from their partners.

“My husband is a doctor, and he read a lot of articles about this issue. He also consulted his teachers. I was going to respect their decision. My husband told me that I could be vaccinated. I constantly checked if my vaccine was defined in the system. I was vaccinated when it was defined.” (P10)

“My spouse supported me a lot in this process. He searched about COVID-19 vaccination. We had a consensus and I got vaccinated because I was afraid of taking responsibility for our fetus alone. Being vaccinated was our common decision with my husband. Thank God that I had been vaccinated. I experienced very mild symptoms when I had COVID-19 infection...” (P16)

DISCUSSION

The results of this study reflect the hesitations, views and experiences of pregnant women who were infected with COVID-19 anytime during the pandemic period in Türkiye about vaccines.

The results of this study showed that pregnant women experienced COVID-19 vaccine hesitancy, and a decrease was found in the number of vaccinations during pregnancy. Prospective cohort studies on pregnant women who were vaccinated against COVID-19 reported that the incidence of COVID-19 vaccine side effects was similar between pregnant and nonpregnant women and that it caused no severe complications (26,27). Besides, a retrospective cohort

study conducted in Israel investigated women who were vaccinated during pregnancy (n=4399) and showed that COVID-19 vaccines had no negative effects on pregnancy and birth outcomes (28). Studies report that COVID-19 vaccines have no negative effects on the course and outcomes of pregnancy (26,28) and that vaccines are recommended in international guidelines (16-18), yet this study found that vaccination ratios during pregnancy were lower in the pregnancy period compared to the pre-pregnancy period. Fear is one of the factors affecting this increase in the ratio. The fear was found to be caused by distrust of vaccine content, distrust of the countries that developed the vaccine, beliefs about the vaccine trial research, and uncertainties about the effects on fetus health. Due to the inadequacy of the COVID-19 vaccine trial research, women were found to experience distrust of the vaccine content and think that vaccines were not safe for themselves and for their fetuses, which caused increased hesitancy and fear (7,14,19). A study that investigated the views of pregnant women about COVID-19 vaccines reported that the fear caused by the efficiency of the vaccines and safety of the information about vaccines and the side effects on fetuses, and the risk of miscarriage and pre-term labor increased pregnant women's vaccine hesitancy and decreased vaccination ratios (14). Anxiety about fetus health can be considered to be a consequence of the insufficient number of studies or distrust of vaccines. Therefore, their fears, misunderstandings and concerns should be addressed with empathy and sensitivity, and pregnant women should be included in shared decision-making processes.

The majority of the participants who were not vaccinated reported that compared to the pregnant women who were vaccinated, the disease affected them more, they experienced the symptoms more severely, and thus they felt guilty and regretful, particularly for their fetuses. Due to the weakness in the immunity system because of physiological changes experienced during pregnancy, the risk of developing viral respiratory tract diseases is higher and the symptoms of these diseases can be experienced more severely (9). A retrospective study conducted in Israel reported that the course of COVID-19 disease was worse in pregnant women compared to nonpregnant women (29). A study that investigated the relationship between the severity of COVID-19 infection during pregnancy and newborn outcomes in Dubai found that pregnant women infected with COVID-19 who experienced severe symptoms were under greater risk in terms of pre-term birth, low birth weight, newborn infection, and acceptance to the neonatal intensive care unit (30). Similar studies in the literature report that the COVID-19 infection causes more severe symptoms during pregnancy (29,30). Participants' experiences included consulting health professionals before being vaccinated against COVID-19 and deciding to be vaccinated particularly because their recommendations were positive. Various studies in the literature also reported that explanations made by health professionals played an important role in pregnant women's acceptance of vaccines (8,14,19).

Some of the participants stated that they had been vaccinated before pregnancy and they also had booster doses during pregnancy. All the participants who were vaccinated during pregnancy stated that they experienced mild symptoms because they were vaccinated against COVID, and their positive attitudes toward the vaccine were affected by social media. In their study that investigated the effect of social media on pregnant women's vaccination decisions, Uludağ et al. (2022) found that social media posts showing pregnant women being vaccinated made women's vaccine decisions easier (19). Healthcare policies should prioritize equitable access to vaccines and support systems, ensuring no woman is disadvantaged due to socioeconomic or cultural barriers. Partner support was found to be another factor that had effects on participants' positive attitudes toward vaccines. A quantitative study conducted in Thailand reported that having a partner who prefers the COVID-19 vaccine increased the probability of pregnant women's accepting the COVID-19 vaccine (30). These findings highlight the ethical responsibility of healthcare systems and professionals to ensure pregnant women have access to accurate, transparent, and evidence-based information about COVID-19 vaccines.

CONCLUSION

The results of this study showed that pregnant women experienced fear due to distrust of vaccines, beliefs about the inadequacy of vaccine research, and concerns about fetus health, while those who were infected reported to experience severe symptoms and develop positive attitudes towards vaccines when they communicated with the health personnel. Besides, social media and partner support were found to be effective in developing positive attitudes toward vaccines.

In line with these results, the determination of pregnant women's hesitations, views and experiences about the COVID-19 vaccine can be a guide for health professionals during the pandemic processes. When it is considered that distrust can be eliminated by determining fears, and health professionals, social media, and partner support can have effects on eliminating vaccine hesitancy, it is important to strengthen women's support mechanism, question the causes of pregnant women's fear by all health professionals primarily by midwives and nurses who have duties in vaccination services, and to provide partners and all family members with understandable and comprehensive information regarding vaccines.

REFERENCES

1. Goodman T. Update on Who Interim recommendations on COVID-19 vaccination of pregnant and lactating women. World Health Organization (WHO), AFRO Webinar, June 2, 2022. Available from: <https://www.who.int/publications/m/item/update-on-who-interim-recommendations-on-covid-19-vaccination-of-pregnant-and-lactating-women> [cited: 2022 Nov 6]
2. Coronavirus disease (COVID-19): Vaccines and vaccine safety. World Health Organization (WHO), 2021. Timeline: COVID-19 Vaccine Uptdates. Available from: [https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/coronavirus-disease-\(covid-19\)](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/coronavirus-disease-(covid-19)) [cited: 2022 Nov 6]
3. WHO Health Emergencies Programme: WHO COVID-19 Dashboard. World Health Organization (WHO), 2022. Available from: <https://data.who.int/dashboards/covid19/cases> [cited: 2022 Jan 26]
4. Yokoyama A, Suzuki H, Kataoka H, Mori Y, Watanabe Y, Miyatake N. Comparison of Impressions of COVID-19 Vaccinations Stratified by the Number of Vaccinations Among Japanese Healthcare Professional University Students. *Cureus*, 2024; 16 (3): e55861. <https://doi.org/10.7759/cureus.55861>.
5. Eberhardt J, Ling J. Predicting COVID-19 Vaccination Intention Using Protection Motivation Theory and Conspiracy Beliefs. *Vaccine*, 2021; 39 (42): 6269-6275. <https://doi.org/10.1016/j.vaccine.2021.09.010>
6. Galanis P, Vraka I, Siskou O, Konstantakopoulou O, Katsiroumpa A, Kaitelidou D. Uptake of COVID-19 Vaccines Among Pregnant Women: A Systematic Review and Meta-Analysis. *Vaccines*, 2022; 10 (5): 766. <https://doi.org/10.3390/vaccines10050766>
7. Gencer H, Özkan S, Vardar O, Serçekuş P. The Effects of the COVID 19 Pandemic on Vaccine Decisions in Pregnant Women. *Women and Birth*, 2022; 35 (3): 317-323. <https://doi.org/10.1016/j.wombi.2021.05.003>
8. Januszek SM, Faryniak-Zuzak A, Barnaś E, Łoziński T, Góra T, Siwiec N, Szczerba P, Januszek R, Kluz T. The Approach of Pregnant Women to Vaccination Based on a COVID-19 Systematic Review. *Medicina (Kaunas)*, 2021; 57 (9): 977. <https://doi.org/10.3390/medicina57090977>
9. Vitiello A, Ferrara F, Zovi A, Trama U, Boccellino, M. Pregnancy and COVID-19, Focus on Vaccine and Pharmacological Treatment. *J Reprod Immuno*, 2022; 151: 103630. <https://doi.org/10.1016/j.jri.2022.103630>
10. Melo GC, Araújo KCGM. COVID-19 Infection in Pregnant Women, Preterm Delivery, Birth Weight, and Vertical Transmission: A Systematic Review and Meta-Analysis. *Cadernos de Saúde Pública*. 2020; 36 (7): e00087320. <https://doi.org/10.1590/0102-311X00087320>
11. Atmar RL, Lyke KE, Deming ME, Jackson LA, Branche AR, El Sahly HM, Rostad CA, Martin JM, Johnston C, Rupp RE, Mulligan MJ, Brady RC, Frenck RW, Bäcker M, Kottkamp AC, Babu TM, Rajakumar K, Edupuganti S, Dobrzynski D, Coler RN, Posavad CM, Archer JI, Crandon S, Nayak SU, Szydlo D, Zemanek JA, Dominguez Islas CP, Brown ER,

- Suthar MS, McElrath MJ, McDermott AB, O'Connell SE, Montefiori DC, Eaton A, Neuzil KM, Stephens DS, Roberts PC, Beigel JH. Homologous and Heterologous COVID-19 Booster Vaccinations. *New England J Med*, 2022; 386 (11): 1046-1057. <https://doi.org/10.1056/NEJMoa2116414>
12. Moghadas SM, Vilches TN, Zhang K, Nourbakhsh S, Sah P, Fitzpatrick MC, Galvani AP. Evaluation of COVID-19 Vaccination Strategies with a Delayed Second Dose. *PLoS Biol*, 2021; 19 (4): e3001211. <https://doi.org/10.1371/journal.pbio.3001211>
 13. Kalafat E, Heath P, Prasad S, Pat O, Khalil A. COVID-19 Vaccination in Pregnancy. *American J Obst Gyne*, 2022; 227 (2): 136-147. <https://doi.org/10.1016/j.ajog.2022.05.020>
 14. Anderson E, Brigden A, Davies A, Shepherd E, Ingram J. Maternal Vaccines during the Covid-19 Pandemic: A Qualitative Interview Study with UK Pregnant Women. *Midwifery*, 2021; 100: 103062. <https://doi.org/10.1016/j.midw.2021.103062>
 15. Vaccination Considerations for People who are Pregnant or Breastfeeding. Centers for Disease Control and Prevention (CDC), 2019. Available from: <https://www.cdc.gov/coronavirus/2019ncov/vaccines/recommendations/pregnancy.html>. [cited 2022 Nov 6]
 16. Practice Advisory: Novel Coronavirus 2019. American College of Obstetrics and Gynecologists (ACOG), 2020. Available from: <https://www.acog.org/Clinical-Guidance-andPublications/Practice-Advisories/Practice-Advisory-Novel-Coronavirus2019> [cited 2022 Nov 1]
 17. COVID-19 Vaccines, Pregnancy and Breastfeeding. Royal College of Obstetricians and Gynaecologists (RCOG). Available from: <https://www.rcog.org.uk/en/guidelines-research-services/coronavirus-covid-19-pregnancy-and-womens-health/covid-19-vaccines-and-pregnancy/covid-19vaccines> [cited 2022 Nov 7]
 18. Clinical Management of Severe Acute Respiratory Infection (SARI) when COVID-19 Disease is Suspected. Interim guidance. World Health Organization (WHO), 2020. Available from: [https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratoryinfectionwhen- novel-coronavirus-\(ncov\)-infection-is-suspected](https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratoryinfectionwhen- novel-coronavirus-(ncov)-infection-is-suspected) [cited 2022 Nov 7]
 19. Uludağ E, Serçekuş P, Yıldırım DF, Özkan S. A Qualitative Study of Pregnant Women's Opinions on COVID-19 Vaccines in Türkiye. *Midwifery*, 2022; 114: 103459. <https://doi.org/10.1016/j.midw.2022.103459>
 20. Braun V, Clarke V, Weate P. Using Thematic Analysis in Sport and Exercise Research. Editors Smith B, Sparkes AC. In *Routledge Handbook of Qualitative Research in Sport and Exercise*. London: Routledge, 2016: 191-205.
 21. Neubauer BE, Witkop CT, Varpio L. How Phenomenology can Help us Learn from the Experiences of Others. *Persp Med Educ*, 2019; 8 (2): 90-97. <https://doi.org/10.1007/s40037-019-0509-2>
 22. O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for Reporting Qualitative Research: A Synthesis of Recommendations. *Acade Med*, 2014; 89 (9): 1245-1251. <https://doi.org/10.1097/ACM.0000000000000388>
 23. Byrne D. A Worked Example of Braun and Clarke's Approach to Reflexive Thematic Analysis. *Quality & Quantity*, 2022; 56 (3): 1391-1412. <https://doi.org/10.1007/s11135-021-01182-y>
 24. Sanders J, Blaylock R. "Anxious and Traumatized": Users' Experiences of Maternity Care in the UK during the COVID-19 Pandemic. *Midwifery*. 2021; 102: 103069. <https://doi.org/10.1016/j.midw.2021.103069>
 25. Kuckartz U, Rädiker S. *Analyzing Qualitative Data with MAXQDA: Text, Audio, and Video*. Switzerland: Springer, 2019.
 26. Blakeway H, Prasad S, Kalafat E, Heath PT, Ladhani SN, Le Doare K, Magee LA, O'Brien P, Rezvani A, von Dadelszen P, Khalil A. COVID-19 Vaccination during Pregnancy: Coverage and Safety. *Am J Obstet Gynecol*, 2022; 226 (2): 236.e1-236.e14. <https://doi.org/10.1016/j.ajog.2021.08.007>
 27. Nakahara A, Biggio JR, Elmayan A, Williams FB. Safety-Related Outcomes of Novel mRNA COVID-19 Vaccines in Pregnancy. *Am J Perinatol*, 2022; 39 (13): 1484-1488. <https://doi.org/10.1055/a-1745-1168>
 28. Wainstock T, Yoles I, Sergienko R, Sheiner E. Prenatal Maternal COVID-19 Vaccination and Pregnancy Outcomes. *Vaccine*, 2021; 39 (41): 6037-6040. <https://doi.org/10.1016/j.vaccine.2021.09.012>
 29. Dollinger S, Zlatkin R, Jacoby C, Shmueli A, Barbash-Hazan S, Chen R, Danieli HZ, Sukenik S, Hadar E, Wiznitzer A. Clinical Characteristics and Outcomes of COVID-19 During Pregnancy-a Retrospective Cohort Study. *Reprod Sci*, 2022; 29 (8): 2342-2349. <https://doi.org/10.1007/s43032-022-00949-4>

30. Dileep A, ZainAlAbdin S, AbuRuz S. Investigating the Association between Severity of COVID-19 Infection during Pregnancy and Neonatal Outcomes. *Scientific Reports*, 2022; 12 (1): 3024. <https://doi.org/10.1038/s41598-022-07093-8>
31. Pairat K, Phaloprakarn C. Acceptance of COVID-19 Vaccination during Pregnancy among Thai Pregnant Women and their Spouses: A Prospective Survey. *Reprod Health*, 2022; 19 (1): 74. <https://doi.org/10.1186/s12978-022-01383-0>