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# A qualitative study of pregnant women's opinions on COVID-19 vaccines in Turkey

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## ARTICLE INFO

### Article history:

Received 2 February 2022

Revised 18 July 2022

Accepted 11 August 2022

### Keywords:

COVID-19

Vaccine

Pregnant

Opinion

Qualitative study

## ABSTRACT

**Objectives:** to examine pregnant Turkish women's opinions on COVID-19 vaccines.

**Design:** a qualitative approach was used to gather data through semi-structured interviews.

**Participants and setting:** 16 women about to receive a vaccine during their pregnancy and who did or did not experience vaccine hesitancy participated.

**Analysis:** qualitative content analysis.

**Findings:** three main themes emerged regarding the pregnant women's opinions on COVID-19 vaccines: fear, security/insecurity and social support.

**Key conclusions and implications for practice:** pregnant women mostly recalled their babies and fears about COVID-19 vaccines. Although the fear of vaccines created vaccine hesitancy during pregnancy, the fear of contracting COVID-19 led to a positive attitude to the vaccines. It is critical to provide pregnant women with information about COVID-19 and vaccines for the disease in order to enhance vaccination rates among pregnant women.

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## Introduction

SARS-CoV-2 was recognized in the world in December in 2019, and COVID-19, which was caused by this virus, spread very quickly (WHO, 2022a). Due to a rapid global dissemination, the World Health Organization (WHO) declared COVID-19 as a pandemic on 11 March 2020 (WHO, 2022b). To control the pandemic, during which millions of people became infected and died (WHO, 2022a), vaccination against COVID-19 started worldwide (The New York Times, 2022). Research and development on COVID-19 vaccines was undertaken, and by 25 January 2022 nine vaccines were approved (The New York Times, 2022). Despite these advances, the rate of the people vaccinated against COVID-19 was, and is not, considered sufficient (WHO, 2022a). Opinions of people on COVID-19 vaccines play an important role in the low vaccination rate (Dodd et al., 2021; Eberhardt and Ling, 2021; Moore et al., 2021). These opinions can be affected by information about vaccine effectiveness (Dodd et al., 2021), a feeling of insecurity about the countries where the vaccines were developed (Moore et al., 2021), conspiracy beliefs (Eberhardt and Ling, 2021) and dissatisfaction with explanations about the vaccines (Dodd et al., 2021). Even individuals not experiencing a special condition can have opinions against

vaccines. Therefore, what pregnant women think of the vaccines is worth an in-depth examination.

When projects utilising COVID-19 vaccines were first launched, it was recommended that most individuals should be vaccinated against the disease. However, there was uncertainty about special groups, such as pregnant women, of people. With an increase in vaccine experimental studies the uncertainty about pregnant women reported to have a risk of experiencing a more severe infection disappeared (CDC, 2021). Then the WHO started to recommend giving a COVID-19 vaccine to women planning to become pregnant, pregnant women and breastfeeding women (WHO, 2021c). Although women experiencing hesitancy received a COVID-19 vaccine before becoming pregnant (Gencer et al., 2021), they may reject booster doses because of their worries about harm to their pregnancy and baby (Anderson et al., 2021). Therefore, the aim of the present study was to examine pregnant women's opinions on COVID-19 vaccines.

## Methods

### Study design

This qualitative study was based on the phenomenological approach. This approach focuses on the experiences of people about a phenomenon and is frequently used in health research (Neubauer et al., 2019). The phenomenon examined in the present

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study was pregnant women's opinions on COVID-19 vaccines. The study was reported in accordance with The Standards for Reporting Qualitative Research (O'Brien et al., 2014).

### Recruitment and sampling

The study sample comprised pregnant women (1) living in Turkey, (2) able to speak and understand Turkish, (3) at or over the age of 18 years, (4) with a minimum of 12-weeks-gestation, (5) having no contraindications to receive a COVID-19 vaccine (6) and experiencing or not experiencing hesitancy about vaccination. The women were accessed through snowball sampling between 6 October and 13 November in 2021. Snowball sampling (or chain sampling) is a nonprobability sampling technique where existing study subjects recruit future subjects from among their acquaintances (Streubert and Carpenter, 2011; Houser, 2014). In research, the announcement of the study was made in the accounts mostly followed by pregnant women on social media sites such as Facebook and Instagram. The first pregnant woman included in the study was accessed on a social media site. With the help of the first pregnant woman who was contacted on social media, the other pregnant woman was reached, it was continued in a chained manner until the data saturation was reached. As recommended in the literature (Streubert and Carpenter, 2011; Houser, 2014), interviews were continued until no new information was obtained. The study was completed with 16 pregnant women.

### Data collection

Data were collected in two forms: a descriptive characteristic form and a semi-structured interview form at in-depth interviews on the phone which were conducted in the Turkish language. The descriptive characteristics form was composed of questions about sociodemographic characteristics such as age and income. The semi-structured interview form included the following open-ended questions:

"What do you think of receiving a COVID-19 vaccine in pregnancy?" and

"What are your reasons for getting or not getting a COVID-19 vaccine?".

Each participant was interviewed by the same researcher (DFY). To clarify the participants' responses, improve their confirmability and offer the participants a chance to change their responses, the researcher read the summary of what they had said after each question and asked for their confirmation. Each interview lasted 17-27 minutes and was voice recorded.

### Analysis

Content analysis was used for data analysis as described by Graneheim and Lundman, (2004). Voice recordings of the interviews were transcribed verbatim and documented. The participants were assigned numbers such as P1, P2... P16 in the documents to keep their identities confidential. The interviews were analyzed by two researchers individually. Differences in codes and categories were compared and the final themes and categories were created (Graneheim and Lundman 2004). The themes were explained and presented with quotations from the participants. The quotations were first translated into English and then the English versions were back-translated into Turkish to ensure that they were expressed correctly. Word cloud analysis, which is known to facilitate understandability of data (Bletzer, 2015), was performed with MAXQDA 2022. The most frequently used 200 words at the interviews were selected. Pronouns (I, you, he, they, me, him, her

and us etc.), possessive adjectives (my, your, his and her etc.), prepositions (in, at, for etc.), conjunctions (and, so, because etc.) and auxiliary verbs (can, could and didn't etc.) were excluded. The fonts of the words in the cloud were proportional to their frequencies at the interviews.

### Ethical considerations

Research Ethics approval was obtained from the Turkish Ministry of Health COVID-19 Research Evaluation Committee and the medical ethics committee of a university in the western part of Turkey (E-60116787-020-113991). The pregnant women who were accessed were informed about the aim of the study, voice-recording of interviews and confidentiality of obtained data. They were assured that participation in the study was voluntary and that they could leave the study whenever they wanted. The women who agreed to participate in the study were informed about the study again and their oral consent was obtained after voice recordings started. Voice recordings and transcriptions were kept on password-protected computer files.

### Findings

#### Participants' demographic characteristics

The mean age of the participants was  $29.31 \pm 3.82$  years. The mean gestational week of pregnancy at the time of interview was  $23.43 \pm 8.1$  and 11 participants were in their first pregnancy. Twelve participants had not had COVID-19 before. Twelve participants reported having vaccine hesitancy and seven participants had received a COVID-19 vaccine before they became pregnant (Table 1).

#### Opinions on COVID-19 vaccines

The opinions of the participants on COVID-19 vaccines were analysed with a word cloud. The most frequently used word in the documents was vaccine (214 times), followed by know (149 times), vaccinated (146 times), baby (140 times), pregnant (126 times), think (115 times), COVID-19 (110 times), fear (109 times), people (107 times) and get (83 times) (Figure 1).

Three main themes emerged regarding the participants' opinions on COVID-19 vaccines: fear, security/insecurity and social support.

#### Fear

All of the women included in the study reported that they were afraid of contracting COVID-19 or receiving a vaccine for this infection. The pregnant women afraid of getting COVID-19 did not experience vaccine hesitancy and most of them received the first or booster dose during pregnancy. Their fears about COVID-19 included having miscarriages, having to stay in the intensive care unit and dying due to COVID-19. They were also worried that their babies may have to stay in the intensive care unit and may die. The source of their fears was the news on the mass media.

Some of the pregnant women afraid of COVID-19 vaccines experienced vaccine hesitancy before pregnancy. Most of the pregnant women afraid of the vaccines reported that they did not have their booster doses or were indecisive about them. They were worried about side-effects of the vaccines on their babies and complications such as miscarriages and preterm birth. Social media, the mass media, explanations by health professionals and negative narrations from family members and friends played a role in their fears:

Babies born to women with COVID-19 both need more ventilation support and have many negative conditions such as low birth



protective effect of the vaccines, a belief that experiments about the vaccines were conducted too quickly and may not have been completed, discontinuation of some drugs used for the treatment of COVID-19 and inconsistent explanations about the vaccines:

The reason why I lost my confidence in the vaccines are that there were many people getting a COVID-19 vaccine and then contracting the disease. I even knew people dying from COVID-19 despite getting a vaccine. (P-8).

I had COVID-19 when the disease first appeared. The drug given to me at that time has been forbidden in our country now, but I took that drug when I was ill. Therefore, I believe that results of the experiments about the vaccines are not very clear. In my opinion, it is not very sensible to get the vaccines during pregnancy. (P-9).

I was given two doses of a COVID-19 vaccine, but explanations made about the vaccines created a sense of insecurity about them. Therefore, I don't think I will get the third dose of the vaccine. (P-4).

### Social support

Half of the pregnant women not experiencing vaccine hesitancy said that strong support from their family and friends was effective in their decisions about vaccination against COVID-19. They commented that they did not feel lonely when they received support from their families and friends:

My husband's advice to get the vaccine influenced me. I was actually planning to get the vaccine later. With his encouragement, I got the vaccine earlier than I planned. (P-3).

I asked my friends about the vaccines. They said the vaccines were protective and did not have any negative effects. I talked to my husband. He said I could get a vaccine if I liked and added he would also receive a vaccine. My husband and my friends promised to support me. They assured me that I shouldn't feel guilty if something bad happened. I received the vaccine thanks to their great support. (P-15).

Some pregnant women reported that the social media sites they utilised were effective in their decision to receive the vaccine:

The women following an Instagram account for pregnant women posted that they got the vaccine, so I decided to get vaccinated. (P-13).

### Discussion

In the present study, the word cloud analysis revealed that the most frequent words were vaccine, baby, vaccinated, know, pregnant, think, people, COVID-19, get and fear. The finding that "baby", "pregnancy" and "fear" were the second most frequently uttered words following "vaccine" showed that the pregnant women's opinions about COVID-19 vaccines focused on their babies and fears about the vaccines. Several prior studies have also demonstrated that pregnant women's fears about COVID-19 vaccines were mainly related to their babies (Anderson et al., 2021; Gencer et al., 2021).

In the current study, while fear was found to encourage some of the pregnant women to receive a COVID-19 vaccine, it discouraged others from being vaccinated. It has been stated in the literature that COVID-19 and resultant complications can lead to fears in pregnant women (Naghizadeh and Mirghafourvand, 2021; Onchonga et al., 2021; Ralph et al., 2021; Sutton et al., 2021). The pregnant women afraid of having COVID-19 and resultant complications were not observed to experience vaccine hesitancy in our study.

In the present study, the pregnant women who had fears about side-effects of COVID-19 vaccines on babies, miscarriages and preterm birth were found to experience vaccine hesitancy.

Consistent with this finding, several studies have shown that pregnant women are worried about effects of COVID-19 vaccines on fetal development, miscarriages and fetal death (Anderson et al., 2021; Duarte et al., 2021; Ralph et al., 2021; Sutton et al., 2021). Unlike prior studies, the present study showed that the pregnant women were afraid of feeling guilty if the vaccines had side-effects on their babies. The women avoided receiving the vaccines in order not to experience the feeling of guilt.

In the present study, fears about COVID-19 vaccines were found to have been influenced by social media, the mass media, negative criticisms expressed by family and friends and comments made by health professionals. Similar studies also revealed that social media (Bandeu et al., 2021; Gencer et al., 2021; Luo et al., 2021), conspiracy beliefs (Scrima et al., 2022), comments passed by health workers and television programmes (Nomura et al., 2021) had an impact on opinions on COVID-19 vaccines. The reason why social media causes fears about COVID-19 vaccines is that anti-vaccine rhetoric came to the fore on social media (Luo et al., 2021). Gencer et al. (2021) also discovered that following Internet forums some pregnant women had vaccine hesitancy.

It is reported in the literature that confidence in the effectiveness of the vaccines and reliable information about the vaccines play a role in acceptance of the vaccines among pregnant women (Anderson et al., 2021; Januszek et al., 2021; Sutton et al., 2021). However, different sources were found to offer conflicting information (Kumari et al., 2021). The sources of vaccine hesitancy were reported to be a relatively short time of vaccine development (Trent et al., 2021), doubts about vaccine protection (Dodd et al., 2021) and explanations made by health professionals (Nomura et al., 2021). In the present study, the factors creating the feeling of security/insecurity about the vaccines were the processes of vaccine development and comments made by health professionals, especially midwives. Unlike previous studies, the present study revealed that debates over some drugs used for the treatment of COVID-19 at the beginning of the pandemic and discontinuation of these drugs in the later stages of the pandemic created vaccine hesitancy in the pregnant women. The women commented that uncertainty about the drugs used to treat COVID-19 could also be true for the vaccines against the disease.

The current study also showed that social support had a positive influence on the pregnant women's opinions of COVID-19 vaccines and encouraged them to receive the vaccines. However, several studies have demonstrated that family and friends can play a role in hesitancy in routinely administered vaccines during pregnancy (Andre et al., 2019; Urrunaga-Pastor et al., 2021).

### Conclusion

Fears greatly affected pregnant women's opinions on COVID-19 vaccines. Although the fear of vaccines created vaccine hesitancy during pregnancy, the fear of contracting COVID-19 led to a positive attitude to the vaccines. Confidence in the vaccines and social support had a positive effect on the decision to receive a vaccine during pregnancy. Offering pregnant women information about COVID-19 and vaccines for the disease are important to increase the rate of vaccinations in pregnant women. Strengthening support mechanisms will eliminate the negative feelings of fear, guilt and regret, create a feeling of security about the vaccines and improve the rate of vaccinations in pregnant women.

### Ethical Approval

Ethical approval was obtained from Covid-19 Research Evaluation Committee of the Turkish Ministry of Health and the medical ethics committee of a university in the western part of Turkey (E-60116787-020-113991).

## Funding Sources

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

## Declaration of interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## CRediT authorship contribution statement

**Elif Uludağ:** Conceptualization, Methodology, Formal analysis, Writing – review & editing. **Pınar Serçekuş:** Methodology, Formal analysis, Writing – review & editing. **Dicle Filiz Yıldırım:** Investigation, Writing – original draft, Visualization. **Sevgi Özkan:** Writing – review & editing.

## Acknowledgements

Thank you to all participants.

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