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RESEARCH / ARAŞTIRMA

The Evaluation of COVID-19 Vaccine Hesitancy Level in Pregnant Women

Gebelerin COVID-19 Aşı Kararsızlığı Düzeyinin Değerlendirilmesi

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Abstract

Objective: The most common cause of COVID-19 vaccine hesitancy is fear of side effects and unknown long-term results. This study aimed to determine the COVID-19 vaccine instability level of pregnant women followed up in a training and research hospital in Turkiye.

Material and Method: This prospective survey study was conducted in Mugla Sıtkı Kocman University (MSKU) Hospital pregnancy outpatient clinic between dates June-August 2022 through face-to-face interviews. Totally 380 pregnant women were included in the study. Research data were collected using the Sociodemographic Data Collection Form and the COVID-19 Vaccine Hesitancy Scale. Statistical significance level was accepted as $p< 0.05$.

Results: The mean age of the pregnant women participating in the study was 26.05±10.22 and their mean gestational week was 24.20±12.30. The mean score of COVID-19 vaccine hesitancy scale was 15.85±6.44. The COVID-19 vaccine acceptance rate of pregnant women was found to be 76%.

Conclusion: According to the results of our study, the COVID-19 vaccine hesitancy rate is low compared to the current literature. It is thought that the reason for the increase in the vaccine acceptance rate is the increase in the number of vaccinated pregnant women and the confidence that has arisen due to the lack of complications.

Keywords: COVID-19, pregnancy, vaccine hesitancy.

Öz

Amaç: COVID-19 aşı kararsızlığının en sık nedeni, yan etki endişesi ve uzun dönem sonuçlarının bilinmemesidir. Bu çalışmada, Türkiye'de bir eğitim araştırma hastanesinde takip edilen gebelerin COVID-19 aşı kararsızlığı düzeyinin belirlenmesi amaçlanmıştır.

Gereç ve Yöntem: Bu tanımlayıcı prospektif çalışma, Muğla Sıtkı Koçman Üniversitesi (MSKÜ) Hastanesi gebe polikliniğinde yüz yüze görüşme yöntemiyle Haziran-Ağustos 2022 tarihleri arasında yapılmıştır. Çalışmaya toplam 380 gebe kadın dahil edilmiştir. Araştırma verileri Sosyodemografik Veri Toplama Formu ve COVID-19 Aşı Kararsızlığı Ölçeği kullanılarak toplanmıştır. İstatistiksel anlamlılık düzeyi $p<0.05$ olarak kabul edilmiştir.

Bulgular: Çalışmaya katılan gebelerin yaş ortalaması 26,05±10,22 ve gebelik haftası ortalaması 24,20±12,30'dur. COVID-19 aşı kararsızlığı ölçeği toplam puan ortalaması 15,85±6,44 olarak bulunmuştur. Gebelerin COVID-19 aşısı kabul oranı ise %76 olarak saptanmıştır.

Sonuç: Çalışmanın sonuçlarına göre COVID-19 aşı kararsızlık oranı güncel literatüre göre düşük bulunmuştur. Bu oranın düşmesinde aşılanan gebe sayısının artması ve aşının komplikasyon oluşturmaması etkili olmuştur.

Anahtar Kelimeler: COVID-19, gebelik, aşı kararsızlığı.

1. Introduction

Coronavirus infectious disease (COVID-19) has led to a pandemic due to its high contagiousness and lack of effective treatment (1). Partial immunosuppression is observed due to physiological changes during pregnancy. Therefore, pregnant women become prone to many infections, including viral ones. COVID-19 infection can cause severe maternal and fetal health problems such as pneumonia, need for mechanical ventilation, abortus, growth retardation, premature birth, and intrauterine death in pregnant women (2,3).

Vaccines are the most effective method of preventing and controlling infectious diseases. Since the launch of various COVID-19 vaccines, it has become the most effective way to sustainably manage the pandemic (4). The Centers for Disease Control and Prevention (CDC) and Food and Drug Administration (FDA) state that the use of COVID-19 vaccines in pregnant women is appropriate, and from the data obtained so far, there is no concern about the safety of vaccines administered during pregnancy. There is hesitancy about possible side effects and long-term complications of the COVID-19 vaccine during pregnancy. However, as more and more studies contribute to the literature, the data regarding the safe use of COVID-19 vaccines in pregnancy is getting stronger (5). In the expert opinion published in June 2021; the Turkish Maternal Fetal Medicine and Perinatology Society (TMFTP) recommended that all pregnant women should be informed about the COVID-19 vaccine, inactivated or mRNA vaccine should be administered after the first trimester if possible, in risky groups and at the request of the patient. The Turkish Society of Gynecology and Obstetrics (TJOD) has offered the opinion that all pregnant women and women who are planning a pregnancy or breastfeeding should be vaccinated against COVID-19. The recommendation of the Republic of Turkiye Ministry of Health regarding vaccines for pregnant women is as follows: Vaccination of pregnant women for COVID-19 infection, if possible, after the first trimester, by being informed and of their own free will (6).

Vaccine hesitancy has been defined as a delay or refusal to accept vaccination despite the availability of vaccination services by World Health Organization (WHO) (7). Vaccine hesitancy causes rejections in vaccine use and has the potential to delay vaccination programs and adversely affect the public health outcomes of vaccine-preventable diseases (8). Reasons for vaccine hesitancy can be listed as follows: country/city of residence, education level of parents, vaccines consisting of single or multiple doses, adverse reaction concerns, and healthcare personnel's approach to vaccination (9). Due to the negative attitudes toward the nature and possible side effects of COVID-19 vaccines, there is a hesitancy for receiving these vaccines worldwide. The most common cause of COVID-19 vaccine hesitancy is fear of side effects and unknown long-term results. This study aimed to determine the COVID-19 vaccine hesitancy level of pregnant women followed up in a training and research hospital in Türkiye.

1.1. Research Questions

- What is the level of vaccine hesitancy among pregnant women followed up in a training and research hospital in Türkiye?
- Do the vaccine hesitancy levels of pregnant women differ significantly according to socio-demographic characteristics?

2. Material and Method

2.1. Study Design

This descriptive cross-sectional design study was conducted in Mugla Sıtkı Kocman University (MSKU) Hospital pregnancy outpatient clinic between the dates June-August 2022 through face-to-face interviews.

2.2. Sample

Native 380 Turkish speaker volunteers living in Türkiye who are 18 years of age and older, were included in the study. Patients who were allergic to vaccines did not speak Turkish and had active COVID-19 infection were excluded from the study. Sample size was calculated using a 5% margin of error, a 95% confidence interval, a 60% vaccine hesitancy rate in the literature via the website http://sampsize.sourceforge.net/iface/index.html (10). The minimum sample size was found to be 369.

2.3. Data Collection Tools

In data collection, sociodemographic data collection form prepared by the researchers to determine the sociodemographic characteristics of the participants and COVID-19 Vaccine Hesitancy Scale were used (3,9,11).

COVID-19 Vaccine Hesitancy Scale: The scale that determines COVID-19 vaccine hesitancy, developed by Freeman et al. (2020), consists of 7 items (12). Item-specific response options coded from 1 to 5 were used. Apart from the options scored on the scale, there is the option of "Don't know". Participants who mark the option "Don't know" are excluded from scoring because they are considered to not know the answer to the question or there is doubts about the intelligibility of the question. The range of scores can be obtained from the scale ranges from 7 to 35, and high scores on the scale indicate a high level of COVID-19 vaccine hesitancy. The Turkish validity and reliability of the questionnaire were studied in the study of Yeşilçiçek Çakır et al (11). In the studies of Freeman et al. and Yeşilçiçek Çakır et al., the Cronbach's Alpha values are 0.97 and 0.84, respectively (11,12). In our study, it was found as 0.82.

2.4. Data Analysis

IBM SPSS (Statistical Package for the Social Sciences) 21.0 package program was used to evaluate the findings of the study. Descriptive statistics; number (n) and percentage (%) were used for variables shown by counting, and mean±standard deviation (X±SD) was used for variables shown by measurement. Kolmogorov-Smirnov (KS) Test of Normality was used to determine whether the mean scores of the COVID-19 Vaccine Hesitancy Scale followed a normal distribution. The Student's t-test and one way ANOVA test were used for data that conformed to normal distribution. However, since there was no significant difference between the scale mean scores and sociodemographic characteristics, not be shown in the table.

2.5. Ethical Aspect of the Research

Consent of each pregnant woman was obtained through an informed voluntary consent form. The study was approved by the Mugla Sıtkı Kocman University (MSKU) Ethics Committee: Dated: 17.05.2022, Numbered: 41.

Informed Consent Forms were filled by the participants before starting the study. Publication ethics principles were followed during the research process.

3. Results

Totally 380 pregnant women participated in the study and filled out the questionnaire completely. The following findings were obtained in the study where the level of COVID-19 vaccine hesitancy of pregnant women was evaluated. The mean age of the pregnant women was 26.05±10.22. The mean gestational week was 24.20±12.30 weeks. The mean parity was found to be 1.05±1.08. The marital status, educational status, employment status, average income level, income status, chronic disease status, having children before and having had a previous COVID-19 status of the pregnant women are given in Table 1. There was no statistical difference between sociodemographic characteristics and the vaccine hesitancy scale mean score.

Table 1. Sociodemographic characteristics of the participants (n:380)

Characteristics (n:380)	n	%
Marital Status		
Married	377	99.2
Single	3	0.8
Educational Status		
Primary School graduate	39	10.2
High School Graduate	126	33.2
University Graduate	165	43.4
Postgraduate and Above	50	13.2
Employment Status		
Yes	160	42.1
No	220	57.9
Average Income Level		
Income less than expenses	178	46.9
Income equal to the expense	150	39.4
Income more than expenses	52	13.7
Chronic Disease Status		
Yes	34	9.0
No	346	91.0
The status of having children before		
Yes	172	45.2
No	208	54.8
The COVID-19 status		
Yes	55	14.4
No	325	85.6

The values are given as either frequency or mean±SD.
n: population, %: percentage

The vaccine hesitancy scale total mean score was found to be 15.85±6.44. It was determined that 47.1% of the participants answered the question " Would you take a COVID-19 vaccine (approved for use in Türkiye) if offered?" as 'Definitely', 18.4% 'Probably', 20% 'I may or I may not', 6.5% 'Probably not' and 7.8% 'Definitely not'. In addition, the COVID-19 vaccine acceptance rate of the pregnant women who participated in the study (the percentage of participants who marked at least 1 or 2 out of 7 items) was determined as 76%. The mean score and frequency distribution of the COVID-19 Vaccine Hesitancy Scale is shown in Table 2.

Table 2. Frequency Distribution of COVID-19 Vaccine Hesitancy Scale

COVID-19 Vaccine Hesitancy Scale (n: 380)		n	%
M1. Would you take a COVID-19 vaccine (approved for use in Türkiye) if offered?	Definitely	179	47.1
	Probably	70	18.4
	I may or I may not	76	20.0
	Probably not	25	6.5
	Definitely not	30	8.0
M2. If there is a COVID-19 vaccine available:	I will want to get it as soon as possible	112	29.4
	I will take it when offered	161	42.3
	I'm not sure what I will do	49	12.8
	I will put off (delay) getting it	40	10.5
	I will refuse to get it	18	5.0
M3. I would describe my attitude towards receiving a COVID-19 vaccine as:	Very keen	61	16.0
	Pretty positive	152	40.0
	Neutral	102	26.8
	Quite uneasy	55	14.4
	Against it	10	2.8
M4. If a COVID-19 vaccine was available at my local pharmacy, I would:	Get it as soon as possible	125	32.8
	Get it when I have time	91	23.9
	Delay getting it	70	18.4
	Avoid getting it for as long as possible	40	10.5
	Never get it	54	14.4
M5. If my family or friends were thinking of getting a COVID-19 vaccination, I would:	Strongly encourage them	134	35.2
	Encourage them	110	28.9
	Not say anything to them about it	100	26.3
	Ask them to delay getting the vaccination	18	4.8
	Suggest that they do not get the vaccination	18	4.8
M6. I would describe myself as:	Eager to get a COVID-19 vaccine	82	21.6
	Willing to get the COVID-19 vaccine	115	30.3
	Not bothered about getting the COVID-19 vaccine	110	28.9
	Unwilling to get the COVID-19 vaccine	55	14.4
	Vaccine hesitancy for COVID-19	18	4.8
M7. Taking a COVID-19 vaccination is:	Really important	149	39.2
	Important	135	35.5
	Neither important nor unimportant	70	18.4
	Unimportant	20	5.2
	Really unimportant	6	1.7

The values are given as either frequency or mean±SD.
n: population, %: percentage

4. Discussion

Protecting pregnant women from all kinds of infections, including COVID-19 infection is very important (13,14). The most effective method of prevention is vaccination, regardless of trimester. However, some pregnant women do not accept vaccination for many reasons, such as fear of teratogenicity and not knowing about long-term side effects. The COVID-19 vaccine acceptance rate in pregnant women who participated in our study (the percentage of participants who marked at least 1 or 2 out of 7 items)

was 76%. At the same time, the mean score of the vaccine hesitancy scale was found to be 15.85±6.44 in our study. According to this result, the pregnant women participating in the study have a high level of vaccine hesitancy. This result shows that the vaccine hesitancy rate of pregnant women participating in the study is lower than in the current literature (15,16).

In the literature, there is no study aiming to determine the level of vaccine instability using the COVID-19 Vaccine Hesitancy Scale on pregnant women. The Turkish validity and reliability of the questionnaire were studied in the study of Yeşilçiçek Çakır et al (11). In the study conducted by Freeman et al. (2020) in which the scale was used, the acceptance rate of the COVID-19 vaccine was found to be 71.7%. In addition, the mean score of the scale in this study was found to be 13.60±7.30 (12). In the study conducted by Duong et al. (15) to determine the vaccine hesitancy of school personnel, the mean score of the scale was found to be 11.20±2.70. When the results are analyzed, it is seen that the vaccination hesitancy level of the pregnant women participating in our study is lower compared to other studies. The fact that the safety of the vaccine has been proven in most societies and that this study was conducted after other studies may have contributed to the lower vaccine hesitancy results compared to other studies (17).

The most common causes of vaccine hesitancy were found to be insufficient data on vaccine safety in pregnant women and possible harm to the fetus. It was also observed that pregnant women in the first trimester experienced less vaccine hesitancy compared to the second and third trimesters. In another study conducted in our country to determine the attitudes of pregnant women towards vaccine acceptance and hesitancy against COVID-19 vaccines; 37% of the participants stated that they were considering getting vaccinated because it was recommended for pregnant women (18). In the study of Skjefte et al. (16), which included 5282 pregnant women in 16 countries, it was determined that 52% of the pregnant women wanted to be vaccinated. It was determined that the countries with the highest demand for vaccination were India and the Philippines, while the countries with the lowest demand were Russia, the USA, and Australia. In the study of Ghamri et al. (2022), conducted with the participation of 5307 pregnant women, the rate of desire to be vaccinated was found to be 68%. In a detailed evaluation, it is seen that the desire of pregnant women to be vaccinated has increased due to having a child going to school, living at home with people over 65 years of age, having a high education level, having a high-risk pregnancy, and having received influenza and tetanus vaccinations throughout the pregnancy (19).

Vaccine hesitancy is a complex, multifaceted problem with significant variability depending on region, race, ethnicity, pregnancy, education level, employment status, and social and geopolitical impact (20). Despite tremendous progress in vaccine development and administration, the current level of acceptance of the COVID-19 vaccine remains insufficient to meet herd immunity development requirements. WHO has classified vaccine hesitancy as one of the top ten threats to global health, even before the COVID-19 pandemic. Therefore, it is important to understand and address the cause of vaccine instability (7).

In a study conducted with the participation of 485 pregnant and postpartum women, the rate of vaccine instability was found to be 46%. In addition, it is seen that the rate of vaccination hesitancy is low for people whose family or friend has been vaccinated, who have accepted being vaccinated for any infectious disease before, and who think that the vaccine will benefit the baby (21). Similarly, in a study conducted with 28 pregnant women, 60 breastfeeding women, and 109 women with children, vaccine acceptance of pregnant and lactating women was found to be higher than that of women who have children (22). In addition, in the study of Citu et al. (2022) conducted with 184 pregnant and 161 non-pregnant women, it was found that the vaccine hesitancy rate in pregnant women was higher than in non-pregnant women (23).

A systematic review of 25839 women, examining opinions around the world, shows that 49.1% of pregnant women and 61.6% of lactating women accepted the COVID-19 vaccine. Given the high rate of complications associated with the course of COVID-19 during pregnancy, these rates still seem very low. Therefore, different strategies with stronger and more informative messages about the pros and cons of getting vaccinated should be implemented to reduce the spread of infection (24).

As limitation of our study, since it was conducted with follow-up pregnant women in a single hospital, the results do not reflect the entire universe. A qualitative study should be planned to investigate the reasons for not accepting a vaccine.

5. Conclusion and Recommendations

According to the results of our study, the COVID-19 vaccine hesitancy rate is low compared to the current literature. We think that the reason for the increase in the vaccine acceptance rate is the increase in the number of vaccinated pregnant women and the trust due to the lack of complications.

6. Contribution to the Field

Increasing rates of vaccine hesitancy worldwide are a major immunization problem for pregnant women, just like the case is for all people. In the literature, COVID-19 vaccine hesitancy rate of pregnant women is high. This study is important to determine the COVID-19 vaccine hesitancy rate in pregnant women in our country. In order to reduce this rate; information should be given by health professional about the content of the vaccine, possible side effects, importance of mother and baby health and what is wrong in vaccination. In this way, the level of knowledge of pregnant women about the vaccine can be increased and the vaccine hesitancy rate can be reduced.

Conflict of Interest

There is no conflict of interest regarding any person and/or institution.

Authorship Contribution

Concept: MFK, BBP, AAS; **Design:** MFK, BBP; **Supervision:** AAS, MFK, BBP; **Funding:** None; **Materials:** None; **Data Collection/Processing:** FM, BK, BŞU; **Analysis/Interpretation:** MFK, BBP; **Literature Review:** FK, BK, BŞU; **Manuscript Writing:** MFK, BBP; **Critical Review:** MFK, BBP, AAS.

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