

**Original Research****Determinant Factors Involved In Pregnant Women's Willingness To Receive Covid-19 Vaccine****Risqi Dewi Aisyah<sup>1\*</sup>, Fitriyani Fitriyani<sup>2</sup>, Dwi Bagus Pambudi<sup>3</sup>**<sup>1,2</sup>Department of Midwifery, Faculty of Health Sciences, Muhammadiyah Pekajangan Pekalongan University<sup>3</sup>Department of Pharmacy, Faculty of Health Sciences, Muhammadiyah Pekajangan Pekalongan University**ABSTRACT**

**Background:** *The COVID-19 vaccine still has a poor vaccination rate among pregnant women for a variety of reasons, one of which is a lack of knowledge about the vaccine's advantages as well as the potential side effects and risks that may result from the vaccine. The purpose of this research is to discover determinant factors that influence Covid-19 vaccination willingness.*

**Methods:** *This is a descriptive analytic study with a chronological method. In this study, a total population of 255 pregnant women was sampled, using the first dose of COVID-19 vaccination administered to pregnant women at Kedungwuni II Health Center. This research relies on primary data and a questionnaire that has been assessed for validity and reliability. This study lasted six months, from July to December 2021. The analysis was a multivariate logistic regression analysis.*

**Results:** *The factors related to the willingness of pregnant women to take part in the COVID-19 vaccination were age ( $p=0.026$ ), gravida status ( $p=0.029$ ), ANC frequency ( $p=0.002$ ) and knowledge about covid 19 vaccination ( $p=0.001$ ).*

**Conclusion:** *It is critical for healthcare practitioners to provide information about the COVID -19 vaccination so that expectant mothers do not feel anxious about going to the vaccination sites. Pregnant women should also be informed about the possibility of post-vaccination complications.*

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**INTRODUCTION**

COVID-19 or the Coronavirus Disease of 2019 is the second pandemic of the 21th century. It has infected over a hundred million people and killed over two million people worldwide. This is the 7th coronavirus that is known to cause sickness in humans, following Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Distress Syndrome Coronavirus-2 (SARS-CoV-2).

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Pneumonia, ARDS, septic shock, and cardiovascular diseases are the most prevalent consequences. SARS-CoV-2 is primarily transmitted through the respiratory system, either directly from air or through infected individuals. Hand cleanliness, social distance, and personal protective equipment (such as masks) are some of the most effective ways to avoid this disease infection.

Covid-19 patients were managed by receiving assistance, anticoagulation, and a focus on improving breathing ability. Administering Dexamethasone, remdesivir and tocilizumab therapy appears to be some of the most promising action to defeat the virus thus far. Furthermore, many international initiatives, including speeding the rate of vaccinations, have been made. Certain vaccines are also proven to be efficacious enough to be utilized in large numbers (Mallah et al., 2021), (Walach et al., 2021), (Kachikis et al., 2021). Various types of vaccinations to combat SARS-CoV-2 have been developed as a result of the Covid-19 Pandemic (Krammer, 2020).

In comparison to non-pregnant individuals, SARS CoV-2 will be more severe in pregnant women. Because pregnant women with Covid-19 require special care, hospitalization will be increased; furthermore, this viral infection in women who are pregnant might result in mortality (Zambrano et al., 2020). According to several researches, it is still unknown if women who are pregnant are more vulnerable to SARS-CoV-2 infection than non-pregnant persons while showing no symptoms (Sutton et al., 2020).

Pregnant women who have been infected with COVID-19 are at higher risk of serious cardiopulmonary problems than non-pregnant women ones and they require more intense treatment. Despite the claims that pregnant women with COVID-19 are asymptomatic and the underlying illness resolves in more than half of instances (Wang et al., 2021), women who are pregnant while infected by COVID-19 have a higher chance of giving birth prematurely or with a low birth weight, as well as postpartum hemorrhage and problems that need caesarean section, according to multiple previous research (Stubblefield et al., 2021), (Ong et al., 2020).

For the sole purpose of protecting pregnant women from harm, therapeutic and vaccination research has traditionally avoided using them as participants. Despite the fact that the American College of Obstetricians and Gynecologists and the Society for Maternal-Fetal Medicine are imploring the Food and Drug Administration to include women who are pregnant in approving the urgent use of COVID-19 vaccine associated with an increased risk of disease in this demography, the research on the efficacy of vaccinations as a reference to medical services in delivering vaccination advice to pregnant women still seems to be relatively limited (Gray et al., 2021), (Male, 2021), (ACOG, 2021).

Given the rising number of infected pregnant women and the high likelihood for a severe condition which might have an impact on the pregnancy and the fetus, getting COVID-19 jabs is a major undertaking for expectant mothers. Efforts to vaccinate against COVID-19, The National Immunization Expert Advisory Committee, or also known as ITAGI in Indonesia, has also advised vaccination for pregnant women (Vaksinasi, 2021) (POGI, 2020a).

The current situation in Indonesia with regard to pregnant women falls into the category of at-risk populations. Expectant mothers of 51.9% who are infected with COVID-19 show no symptoms, 72% of infections occur in pregnancies longer than 37 weeks, 45% require intensive care, and the mortality rate is 3%, the number of obstetricians and gynecologists who have died from Covid-19 infection. According to

POGI data from 2020 to 2021, there were 41 OB-GYN deaths, the second-highest number behind general practitioner deaths (POGI, 2020b).

The National Immunization Expert Advisory Committee (ITAGI) has also advised that pregnant women be vaccinated against COVID-19. In addition to pregnant women, the government has established a goal of children aged 12-17 years as COVID-19 immunization recipients, based on ITAGI guidelines, as a way to stop the spread of COVID-19. As a result, explaining the implementation of screening the target health status before vaccination to the recipients, as one of the principles in the implementation of COVID-19 vaccination services, is necessary for the effectiveness of COVID-19 vaccination services for pregnant women, children aged 12- 17 years, and other target groups (Kesehatan, 2021).

Because the POGI guidelines for the implementation of COVID-19 treatment in pregnant women were discussed in July 2021, this study includes new research. Previous research has only focused on preventing COVID-19 in general, as opposed to this study, which focuses on a more targeted preventive, namely COVID-19 immunization in pregnant women. In addition, this research looks at the factors that influence pregnant women's interest in participating in the COVID-19 vaccine, which has never been studied previously. The present study aims to determine the factors that influence COVID-19 vaccination willingness in expectant mothers.

## **MATERIALS AND METHOD**

This study was conducted at the Kedungwuni II Health Center from July to December 2021. This descriptive study uses a cross-sectional method to analyze the data. The participants in this study were 255 pregnant women with a gestational age over 13 weeks who were scheduled to receive the first jab of COVID-19 vaccine. A total of 255 pregnant women were included in this study's sample.

This study relied on primary data. The researchers used written questionnaire to obtain information and responses from the research subjects. The validity and reliability of the questionnaire, which would be administered to 20 people, were initially assessed before the study began. Following the product moment correlation test on 24 questionnaire items, 20 valid questions ( $r_{count} > r_{table}$ ) with an  $r$  value between 0.469-0.839 and an alpha value of 0.910 ( $> 0.444$ ) were found, indicating that the questionnaire item was reliable.

The questions were organized in such a way that variables relating to the hypothesis are included. Vaccine knowledge questionnaire contains understanding, benefits, dosage, type of vaccine, vaccine terms and screening, side effects. To be more impartial, the researchers collected the data personally; once the respondents had finished the questionnaire, the researchers would assist them in clarifying each question. Multivariate analysis was employed in this study. Logistic regression was employed in the statistical analysis.

This research was conducted after the research team obtained permission to pass the research ethics from the University of Muhammadiyah Semarang with certificate no. 579/KEPK-FKM/UNIMUS/2021.

## RESULTS

The following are the findings of a univariate study of 255 respondents:

**Table 1.** Respondents Frequency Distribution Based on Respondent Characteristics

Variable	Frequency	Percentage (%)
<b>Age</b>		
20-35 Years	43	16,9
<20 Years and >35 Years	212	83,1
<b>Level of education</b>		
Elementary/Junior	133	52,2
High School/College	122	47,8
<b>Gravida status</b>		
Primigravida	60	23,5
Multigravida/grandemulti	195	76,5
<b>ANC Frequency</b>		
Iregular	118	43,7
Regular	137	57,3
<b>Knowledge</b>		
Less	102	40,0
Good	153	60,0
<b>Willingness to vaccinate covid 19</b>		
Not/delayed vaccine	38	14,9
Willingness of vaccines	217	85,1

Table 1 shows that most respondents (83.1%) are 20-35 years old, more than half (52.2%) are elementary/junior high school educated, most (76.7%) are multigravida/grandemulti, more than half (57.3%) have Regular ANC screenings, more than half (60%) have good knowledge of covid 19 vaccinations, and most of pregnant woman (85,1%) are willing to get vaccinated. We give the following results of a multivariate test analysis of the determinants of variables connected to pregnant women's willingness to participate in the COVID-19 vaccination:

**Table 2.** The Findings of Logistic Regression Analysis Show The Expectant Mothers Education Level, Gravida Status, ANC Frequency, and Participation In COVID-19 Vaccination

Variable	OR	CI 95%		p
		Lower	Upper	
Age	3,22	1,14	9,03	0,026
Level of education	1,94	0,62	6,03	0,251
Gravida Status	3,40	1,13	10,11	0,029
ANC Frequency	13,19	2,66	65,24	0,002
Knowledge	41,18	5,18	327,09	0,001
N Observation =255				
-2 Log likelihood = 109,27				
Nagelkerke R <sup>2</sup> = 59%				

Table 2 depicted the knowledge characteristics most closely linked to pregnant women's involvement in COVID-19 vaccination. Knowledgeable expectant mothers had a 41.18 times higher chance of participating in COVID-19 vaccination than pregnant women with poor knowledge (OR=41,18; CI 95%=5,18–327,09; p=0,001).

## DISCUSSION

The findings revealed that the majority of pregnant women in Puskesmas kedungwuni II who were targeted for COVID-19 vaccination were willing to get vaccinated. This demonstrates their strong knowledge of COVID-19 prevention. Several variables impact pregnant women's desire to get COVID-19 vaccine, including age, education level, gravida status, ANC frequency, and maternal knowledge of COVID-19 vaccine.

Table 2 shows a positive link between expectant mother's age and willingness to follow the protocol of COVID-19 vaccination. When compared to those aged 20 and 35, expectant mothers between the ages of 20 and 35 had a 3.22 times higher willingness to be vaccinated. Because young individuals are also at risk for COVID-19 infection, the findings of the Ichsan research, et al. (2021) revealed to the general public that young people who refuse to get vaccinated are targeted for socialization and education. To decrease the total occurrence, appropriate messaging based on age and other aspects to enhance mitigation adherence among the less susceptible, more mobile, and lower priority vaccination age categories will be a necessity and continuous priority (Ichsan et al., 2021).

Expectant mother's knowledge is impacted by their degree of education, and the findings of this present study support previous findings that pregnant women's awareness in their effort to protect themselves from COVID-19 is influenced by their level of education (Besho et al., 2021). The higher their level of education, the easier it will be for them to understand about COVID-19 vaccinations (Khoramabadi et al., 2015). Even if the association between education and the willingness of pregnant women to get vaccinated is statistically insignificant, the findings of this study suggest that there is a correlation between education and the intention of expectant mothers to get COVID-19 vaccines (p value = 0, 251).

The findings reveal a statistically significant link between gravida state and expecting women's willingness to get jabbed with COVID-19 vaccines (p value: 0.029). Primigravidas are often inexperienced with pregnancy and have little awareness of its process (Fauziah et al., 2019). In contrast to multigravida, who have prior childbearing experience and knowledge gathered through earlier pregnancies. Health education, information on pregnancy, particularly about COVID-19, are generally given to primagravida.

The willingness of the expectant mothers to get vaccinated is related to the frequency of antenatal care, and this relationship is statistically significant (p value: 0.002); 13.19 times more likely to actually get vaccinated. Expectant mothers who visit the medical services on a regular basis are more educated about their pregnancy. During pregnancy visits, health care providers offer comprehensive information to expectant mothers about ensuring good health of their pregnancy during the COVID-19 pandemic, including symptoms and signs, diagnosis, therapeutic options, access to immediate and appropriate services, health protocol, and prevention treatments including getting COVID-19 vaccinations (Taubman–Ben-Ari et al., 2020) (Chavan et al., 2021).

Knowledge characteristics are most closely linked to pregnant women's involvement in the COVID-19 vaccination. Expectant mothers with strong knowledge are 41.18 times more likely than pregnant women with poor information to engage in COVID-19 vaccination (OR=41,18; CI 95% =5,18–327,09; p=0,001). This is in consistent with Dewi R, et al (2020) research on maternal knowledge and COVID-19 prevention (Dewi et al., 2020).

Pregnant women's knowledge is influenced by a variety of factors, one of which is their level of education. Since they can obtain relevant information through various forms of mass as well as social media platforms, they are therefore more apt to get a better understanding of what they read, watch or hear (Ayele et al., 2021). Since COVID-19 vaccination is given as part of the government's effort to stop the spread of COVID-19, pregnant and breastfeeding women should not be given the vaccine until the Indonesian Association for Obstetrics and Gynaecology (POGI) makes recommendations and the Ministry of Health issues regulations on COVID-19 vaccination for pregnant women (Kesehatan, 2021) (Vaksinasi, 2021).

Doubts and fear regarding the vaccination effects impact expectant mother's desire to get vaccinated against COVID-19 (Astuti et al., 2021). In addition to this there are several conditions that are screening whether or not the mother is vaccinated. In addition, various factors are used to determine whether or not the mother should be vaccinated. According to the research findings of Septiasari, et al. (2021), it is critical for healthcare practitioners to offer information about the prevention of COVID-19 during a pregnancy, especially about COVID-19 vaccine (Septiasari & Viandika, 2021).

Based on a Chinese research, expectant mother who have good knowledge of COVID-19 also practice good hygiene to stop its spread. The findings of the present study are likewise supported by a Chinese study. This might be related to a greater understanding and awareness of COVID-19 among women, as well as the implications of being susceptible to COVID-19. As a result, women become dependable when it comes to handling and following infection-prevention practices (Ayele et al., 2021).

Furthermore, COVID-19 vaccination is advantageous throughout pregnancy. COVID-19-positive pregnant women are more likely to require hospitalization, doctors are more likely to opt for early deliveries, and these newborns are more likely to be hospitalized as well at the neonatal unit. This would be the reason why getting vaccinated during pregnancy is crucial (Gray et al., 2021). Furthermore, healthcare practitioners and professionals must offer information about COVID-19 vaccine so that expectant mothers do not feel anxious when visiting the vaccination clinic (Shimabukuro et al., 2021). Pregnant women should also be informed about the possible complications following vaccination at the time of vaccination.

According to the research findings of Aisyah RD et al. (2021), there is a difference in pregnant women's knowledge before and after health education. Health care professionals should make it easier for pregnant women to get health education, thus efforts and collaboration between pregnant women and health workers will enhance the amount of education provided to the expectant mothers. This will significantly boost their knowledge and health. (Aisyah et al., 2018)

## **CONCLUSION**

The knowledge characteristics that were most closely linked to pregnant women's involvement in the COVID-19 vaccination. Expectant mothers with excellent

knowledge are 41.18 times more inclined to partake in COVID-19 vaccination than those with inadequate understanding (OR=41,18; CI 95%=5,18–327,09; p=0,001). It is indeed critical for healthcare practitioners and professionals to provide information about COVID-19 vaccines so that expectant mothers do not feel anxious about visiting the clinic vaccination sites.

More importantly, Expectant mothers should also be informed about the possibility of post-vaccination complications during their visit to the site.

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