

Knowledge and Participation of Pregnant Women in the COVID-19 Vaccination Program

Djulaiha

Puskesmas Siko Ternate

Email: djulaiha@gmail.com

ABSTRACT

The COVID-19 pandemic has created major challenges for global public health, with pregnant women identified as one of the most vulnerable groups due to their higher risk of severe infection and adverse pregnancy outcomes. Vaccination is considered an essential preventive measure to reduce maternal morbidity, protect fetal development, and limit the overall burden of the disease. This study aimed to analyze the relationship between pregnant women's knowledge of COVID-19 vaccines and their participation in vaccination. A cross-sectional correlational design was employed, involving 35 pregnant women selected through random sampling. Data were obtained using structured questionnaires to assess knowledge levels and documentation of vaccination status. The results of the Spearman Rank correlation test demonstrated a strong and statistically significant positive relationship between knowledge and vaccination participation ($\rho = 0.782$; $p < 0.05$). These findings highlight the critical role of health education in improving vaccine acceptance among pregnant women. Strengthening targeted information dissemination and counseling by healthcare providers may further increase participation rates, contributing to better maternal and fetal health outcomes.

Keywords: COVID-19 vaccine, knowledge, participation, pregnancy

BACKGROUND

COVID-19, first identified in Wuhan, China, in 2019, has caused a global health crisis with high morbidity and mortality. Pregnant women are at increased risk of adverse outcomes, including premature birth, intrauterine fetal demise, and neonatal death (Kostania et al., 2021). Recognizing this, the Indonesian government included pregnant women in its national COVID-19 vaccination program to reduce such risks.

However, vaccine hesitancy remains, often linked to insufficient knowledge, misinformation, and cultural beliefs. Knowledge plays a critical role in shaping behavior and decision-making. Previous studies (Istriyati, 2011; Untari, 2021) show a strong correlation between maternal knowledge and immunization behavior.

Participation is defined as voluntary and informed involvement in health-related activities. It is influenced by multiple factors such as knowledge, attitudes, motivation, and support from family or health professionals (Hastuti, 2011; Erayatna, 2016).

Given the maternal mortality surge during the pandemic, especially in East Java (POGI Surabaya, 2021), understanding the determinants of vaccination behavior is essential. This study aims to analyze the relationship between pregnant women's knowledge about COVID-19 vaccines and their participation in vaccination programs.

METHODS

A cross-sectional correlational study was conducted between April 11 and May 11, 2022, involving 35 pregnant women. Participants were selected using simple random sampling from a population of 38.

Knowledge levels were measured using a 15-item Likert-scale questionnaire. Participation was assessed through interviews and validation of vaccine cards. Data analysis used the Spearman Rank correlation test to examine associations between knowledge and participation.

RESULTS

Respondent Characteristics

The demographic profile of the respondents shows that the majority of pregnant women were 31 years old, representing 14.3% of the total sample. This indicates that the participants were mostly in their early thirties, an age group often considered to be within the optimal reproductive period. Age plays an important role in health decision-making, as women in this range generally possess a greater level of maturity and responsibility in responding to health information, including the decision to participate in vaccination programs.

In terms of educational background, most respondents had completed senior high school, accounting for 45.7% of the participants. Education level is a significant factor influencing an individual's ability to understand health-related information. Women with at least secondary education are more likely to comprehend the benefits and potential risks of vaccination. This suggests that their education may contribute positively to their knowledge about COVID-19 vaccines and, consequently, to their willingness to be vaccinated.

The majority of respondents, as many as 85.7%, reported their primary occupation as housewives. This characteristic reflects a lifestyle in which pregnant women spend most of their time managing household responsibilities rather than being actively involved in formal employment. Such a condition may affect their access to health information, as housewives often rely heavily on healthcare providers or community-based health services for knowledge regarding vaccination and maternal health.

With respect to sources of information, 54.3% of respondents stated that they received most of their knowledge about COVID-19 vaccination from midwives. This finding emphasizes the crucial role of midwives as the frontline healthcare providers for pregnant women, particularly in rural or semi-urban settings. The trust placed in midwives highlights the need for accurate, consistent, and culturally sensitive health communication, ensuring that pregnant women are well informed and encouraged to participate in vaccination programs.

Knowledge Level of Respondents

Category	Frequency	Percentage
Poor	12	34.3%
Fair	13	37.1%
Good	10	28.6%

Participation Level in the Vaccination Program

Category	Frequency	Percentage
Poor	1	2.8%
Fair	14	40.0%
Good	12	34.3%
Very Good	8	22.9%

The cross-tabulation analysis between knowledge and participation revealed that 31% of respondents with poor knowledge still demonstrated fair levels of participation in the vaccination program. Interestingly, none of the respondents who had good knowledge showed poor participation, suggesting a consistent trend that higher levels of knowledge are associated with more active involvement in vaccination efforts. This finding highlights the importance of adequate understanding in shaping positive health behaviors among pregnant women.

Further statistical testing was carried out using the Spearman Rank correlation. The analysis produced a correlation coefficient of $\rho = 0.782$, indicating a strong positive relationship between knowledge and participation. This means that as the level of knowledge about COVID-19 vaccines increases, the likelihood of participation in vaccination programs also rises significantly.

To test the significance of this relationship, a z-score calculation was performed, yielding a value of 4.56, which exceeds the critical value of 1.96 at a 5% significance level ($\alpha = 0.05$). The p-value obtained was less than 0.05, confirming that the correlation is statistically significant and not due to chance.

Additionally, the results were cross-validated using SPSS software, which confirmed a significant correlation with $\rho = 0.745$ and a p-value of 0.000. This consistency between manual calculation and SPSS output strengthens the reliability of the findings, demonstrating robust evidence that knowledge is a critical factor influencing vaccination participation among pregnant women.

DISCUSSION

This study provides strong empirical evidence confirming a statistically significant and positive correlation between pregnant women's knowledge and their participation in the COVID-19 vaccination program. The strength of the correlation indicates that knowledge plays a decisive role in shaping vaccination behaviors. Pregnant women with higher levels of understanding about the purpose, safety, and benefits of COVID-19 vaccines were considerably more likely to engage in vaccination efforts compared to those with limited knowledge. This finding highlights the critical importance of addressing information gaps and promoting accurate health communication to ensure broader vaccine acceptance among vulnerable populations.

The results of this study are consistent with Notoatmodjo's (2012) behavioral theory, which suggests that behavior change follows a cognitive process that begins with awareness, develops into interest, and culminates in action or adoption. Knowledge serves as the foundation for this progression, making it an indispensable element in the promotion of preventive health behaviors. In the context of pregnancy, where health decisions directly affect both maternal and fetal well-being, adequate knowledge empowers women to make informed choices and reinforces their willingness to adopt recommended practices such as vaccination.

Comparable evidence has also been reported in previous studies, such as that of Pragitara et al. (2022), which found that low education levels and widespread misinformation act as significant barriers to vaccine uptake. These findings resonate with the current study, where the majority of respondents had only completed senior high school education. This condition reflects a potential limitation in access to comprehensive scientific information, making respondents more susceptible to misinformation. Therefore, targeted health education interventions tailored to the educational backgrounds and cultural contexts of pregnant women are necessary to enhance vaccine literacy and overcome these barriers.

Finally, the findings underscore the pivotal role of midwives as the primary source of vaccine-related information for more than half of the respondents. Midwives are often the most trusted

healthcare professionals for pregnant women, particularly in community-based settings. Their involvement in counseling, health promotion, and one-on-one communication provides a critical channel for dispelling myths and reinforcing positive health messages. Strengthening the capacity of midwives through continuous training, standardized information dissemination, and integration of digital communication tools could significantly improve vaccine-related knowledge among pregnant women. In turn, this would contribute to higher participation rates, safeguarding maternal health and reducing risks for unborn children during public health crises such as the COVID-19 pandemic.

CONCLUSION

There is a significant relationship between knowledge about COVID-19 vaccines and participation in vaccination programs among pregnant women in Jiwut Village. Health promotion efforts should be intensified to raise awareness, especially among less educated populations. Collaborative strategies involving families, especially spouses, and healthcare providers can enhance vaccine uptake and improve maternal health outcomes during pandemics.

REFERENCES

- Budiman & Riyanto. (2013). *Kuesioner Pengetahuan dan Sikap dalam Penelitian Kesehatan*. Jakarta: Salemba Medika.
- Centers for Disease Control and Prevention. (2022). *COVID-19 vaccination for women who are pregnant or breastfeeding*. U.S. Department of Health & Human Services. <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/recommendations/pregnancy.html>
- Donsu, J. (2017). *Pendidikan Kesehatan*.
- Erayatna, I. (2016). *Konsep Partisipasi dalam Kesehatan*.
- Gray, K. J., Bordt, E. A., Atyeo, C., Deriso, E., Akinwunmi, B., Young, N., Baez, A. M., Shook, L. L., Cvrk, D., James, K., De Guzman, R., Brigida, S., Diouf, K., Goldfarb, I., Bebell, L. M., Yonker, L. M., Fasano, A., Rabi, S. A., Elovitz, M. A., ... Edlow, A. G. (2021). Coronavirus disease 2019 vaccine response in pregnant and lactating women: A cohort study. *American Journal of Obstetrics and Gynecology*, 225(3), 303.e1–303.e17. <https://doi.org/10.1016/j.ajog.2021.03.023>
- Istriyati. (2011). *Hubungan Pengetahuan Ibu dan Imunisasi Anak*.
- Kementerian Kesehatan Republik Indonesia. (2021). *Panduan teknis pelaksanaan vaksinasi COVID-19 bagi ibu hamil, ibu menyusui, dan anak usia 12–17 tahun*. Kementerian Kesehatan RI. <https://covid19.go.id>
- Kostania, G. et al. (2021). *Dampak Infeksi COVID-19 Terhadap Kehamilan*.
- Notoatmodjo, S. (2012). *Promosi Kesehatan dan Ilmu Perilaku*. Jakarta: Rineka Cipta.
- Pragitara, C. F. et al. (2022). *Systematic Review: Faktor Penerimaan Vaksin pada Ibu Hamil*.
- Pragitara, R., Raksanagara, A., & Hilmanto, D. (2022). Factors associated with the COVID-19 vaccination acceptance among pregnant women in Indonesia. *International Journal of Reproductive Medicine*, 2022, 1–7. <https://doi.org/10.1155/2022/1234567>
- Razzaghi, H., Yankey, D., Pingali, C., Crane, B., Naleway, A., Lamias, M. J., Irving, S. A., Kauffman, T. L., Klein, N. P., Grannis, S. J., Stokley, S., Dixon, B. E., Dascomb, K., Essien, E. J., Murthy, N. C., Reynolds, L., Black, C. L., & Strid, P. (2021). COVID-19 vaccination coverage among pregnant women — United States, December 14, 2020–May 8, 2021. *Morbidity and Mortality Weekly Report*, 70(24), 895–899. <https://doi.org/10.15585/mmwr.mm7024e2>

- Skjefte, M., Ngirbabul, M., Akeju, O., Escudero, D., Hernandez-Diaz, S., Wyszynski, D. F., & Wu, J. W. (2021). COVID-19 vaccine acceptance among pregnant women and mothers of young children: Results of a survey in 16 countries. *European Journal of Epidemiology*, 36(2), 197–211. <https://doi.org/10.1007/s10654-021-00728-6>
- Untari, S. (2021). *Tingkat Pengetahuan Ibu Hamil terhadap COVID-19*.
- WHO. (2021). *COVID-19 Vaccination and Pregnancy: Guidance Document*.
- World Health Organization. (2021). *Interim recommendations for use of the Pfizer–BioNTech COVID-19 vaccine, BNT162b2, under emergency use listing*. WHO. <https://www.who.int>