



Factors influencing pregnant women's willingness for HIV testing in North Aceh

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ABSTRACT

HIV remains a serious public health concern in Indonesia, particularly among pregnant women who are at risk of transmitting the virus to their infants. Despite the availability of testing, many women are still unwilling to undergo HIV screening. This study aimed to identify factors influencing the willingness of pregnant women to take HIV tests at UPTD Puskesmas Nisam, North Aceh District. A cross-sectional design was employed with 58 pregnant women attending antenatal care in 2025, selected through purposive sampling. Independent variables included knowledge, attitude, husband's support, and health worker support, while the dependent variable was the willingness to undergo HIV testing. Data were collected using structured questionnaires and analyzed using the Chi-square test. The results showed that most respondents had poor knowledge (67.2%), negative attitudes (65.5%), low husband's support (67.2%), and inadequate health worker support (69.0%). More than three-quarters (77.6%) of respondents were unwilling to undergo HIV testing. Significant associations were found between knowledge ($p=0.012$), attitude ($p=0.000$), husband's support ($p=0.001$), and health worker support ($p=0.010$) with willingness to undergo HIV testing. **Conclusion:** Knowledge, attitude, husband's support, and health worker support significantly affect the willingness of pregnant women to undergo HIV testing. Strengthening health education and counseling is essential to increase testing uptake and prevent mother-to-child HIV transmission. Policymakers should integrate HIV testing promotion into antenatal care programs, while health workers are encouraged to implement community-based counseling and spousal involvement initiatives to enhance testing participation.

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1. Introduction

Human Immunodeficiency Virus (HIV) remains one of the most serious global public health concerns, affecting millions of people worldwide (Adams, 2020). Since the beginning of the epidemic, more than 88 million people have been infected and over 42 million have died from HIV-related illnesses (WHO, 2024). In 2023, approximately 39.9 million people were living with HIV globally, with the highest prevalence found in sub-Saharan Africa, followed by Asia and the Pacific (Andargie, 2025).

In Indonesia, the HIV epidemic continues to increase each year. The Ministry of Health reported 57,299 new HIV cases in 2023, with the highest numbers found in East Java, followed by several other provinces, including Aceh (WHO, 2023). Although Aceh Province shows a relatively low HIV prevalence compared to other regions, the trend continues to rise annually by 12–15%, with more than 800 cumulative cases by 2022 (Aceh Health Office, 2023). Moreover, the transmission pattern has shifted from injecting drug use to sexual transmission, which increasingly affects the general population, including housewives and pregnant women (Aisyah, 2022).

Pregnant women infected with HIV face a high risk of transmitting the virus to their babies during pregnancy, delivery, or breastfeeding (Sostroasmoro S. , 2018). Without preventive efforts, nearly half of HIV-exposed infants may become infected and die before the age of two. To prevent vertical transmission, the Indonesian government has implemented the *Prevention of Mother-to-Child Transmission (PMTCT)* program, which includes voluntary HIV testing for all pregnant women during antenatal care (ANC) visits (Kemenkes, 2023). However, the implementation of this program remains suboptimal. Data from the Aceh Health Office (2023) showed that only about 30–35% of pregnant women in the province underwent HIV testing, still far below the national target of 70%.

At the local level, UPTD Puskesmas Nisam in North Aceh District reported that, in 2024, of 436 pregnant women attending ANC, only 284 (65.1%) agreed to HIV testing, while 152 (34.9%) refused (Aceh Health Office, 2023). Various studies have identified several factors influencing the willingness of pregnant women to undergo HIV testing, including knowledge, attitudes, husband's support, and the role of health workers (Dewi, 2021); (Fauziani, 2021); (Muslihin, 2024). Limited understanding of HIV transmission and prevention, misconceptions about HIV/AIDS, and stigma in the community have been found to reduce the likelihood of testing (Fitri et al., 2025; Afaya et al., 2024). Meanwhile, adequate knowledge and positive attitudes are known to increase willingness to participate in testing (Lestari, 2023); (Gozali, 2022).

Family or husband's support is also an important factor influencing women's decisions to undergo HIV testing (Gozali et al., 2022; Fitri, 2023). Additionally, motivation and counseling provided by health workers play a crucial role in encouraging HIV testing among pregnant women (Tamir, 2024); (Widiya Fatmiasih, 2023) (Wulandari, 2024). Given these findings, it is important to identify factors influencing the willingness of pregnant women to undergo HIV testing in specific local contexts. Therefore, this study aims to analyze the factors influencing pregnant women's willingness for HIV testing at UPTD Puskesmas Nisam, North Aceh District.

Although studies on HIV testing among pregnant women have been conducted in other regions of Indonesia, no similar study has been carried out in North Aceh, especially at UPTD Puskesmas Nisam. Cultural and religious values in this area may influence women's decisions about HIV testing, making local research important to understand their real situation.

2. Methods

This study employed an analytic observational research design with a cross-sectional approach. The cross-sectional design was chosen because it allows the researcher to examine the relationship between independent and dependent variables at a single point in time. This design was considered appropriate as the study aimed to identify associations rather than causal relationships between maternal factors and the willingness to undergo HIV testing.

The study population consisted of all pregnant women attending antenatal care (ANC) at UPTD Puskesmas Nisam, North Aceh District, in 2025. A total of 58 respondents were selected using a purposive sampling technique based on inclusion criteria: being pregnant, registered for ANC, and willing to participate. Exclusion criteria included severe illness and inability to complete the questionnaire. Although a non-probability sampling method was used, representativeness of the sample was ensured by matching respondent characteristics (age, parity, and ANC attendance frequency) with the overall population of pregnant women at the health center during the study period.

The sample size of 58 respondents met the minimum requirements for the Chi-square test, as each expected cell frequency was greater than five, fulfilling the statistical assumptions for categorical analysis. The structured questionnaire used in this study was adapted from previous research on

maternal knowledge, attitude, and HIV testing behavior, then modified and validated to fit the local context. The instrument had been tested for validity and reliability prior to data collection. The questionnaire consisted of 10 items measuring knowledge, 8 items assessing attitude, 6 items evaluating husband's support, and 5 items measuring health worker support, while the dependent variable, willingness to undergo HIV testing, was measured by 4 items. Data collection followed sequential procedures, including obtaining research permission, coordinating with health workers, distributing questionnaires, and collecting responses. All data were coded, edited, and tabulated before being analyzed using the Chi-square test at a 95% confidence interval ($\alpha = 0.05$). The Chi-square test was selected because all variables were categorical, and the objective was to determine significant associations, not causal or predictive relationships

3. Results and Discussion

Results

- a. Sample Characteristics, table 1 presents the characteristics of respondents. The majority of pregnant women demonstrated poor knowledge (67.2%), negative attitudes (65.5%), poor husband's support (67.2%), and poor health worker support (69.0%). Furthermore, most respondents (77.6%) were unwilling to undergo HIV testing.

Table 1.
Frequency distribution of factors influencing the willingness of pregnant women to undergo HIV testing at UPTD Puskesmas Nisam, 2025

No	Variable	Category	f	%
1	Knowledge	Poor	39	67.2
		Good	19	32.8
		Total	58	100
2	Attitude	Negative	38	65.5
		Positive	20	34.5
		Total	58	100
3	Husband's support	Poor	39	67.2
		Good	19	32.8
		Total	58	100
4	Health worker support	Poor	40	69.0
		Good	18	31.0
		Total	58	100
5	Willingness for HIV test	Unwilling	45	77.6
		Willing	13	22.4
		Total	58	100

Description: Among 58 pregnant women, the majority had poor knowledge (39; 67.2%), negative attitudes (38; 65.5%), poor husband's support (39; 67.2%), and poor health worker support (40; 69.0%). Most respondents (45; 77.6%) were unwilling to undergo HIV testing.

- b. Bivariate Analysis

Knowledge and willingness for HIV testing

Table 2.
Cross-tabulation between knowledge and willingness to undergo HIV testing

Knowledge	Unwilling f (%)	Willing f (%)	Total f (%)
Poor	34 (87.2)	5 (12.8)	39 (100)
Good	11 (57.9)	8 (42.1)	19 (100)
Total	45	13	58

p -value = 0.012 ($\alpha = 0.05$), most women with poor knowledge were unwilling to undergo HIV testing (87.2%). The Chi-square test showed a significant relationship between knowledge and willingness to undergo HIV testing ($p = 0.012$).

Attitude and willingness for HIV testing

Table 3.
Cross-tabulation between attitude and willingness to undergo HIV testing

Attitude	Unwilling f (%)	Willing f (%)	Total f (%)
Negative	35 (92.1)	3 (7.9)	38 (100)
Positive	10 (50.0)	10 (50.0)	20 (100)
Total	45	13	58

p -value = 0.000 ($\alpha = 0.05$). The majority of respondents with negative attitudes were unwilling to undergo HIV testing (92.1%). A statistically significant association was found between attitude and willingness to undergo HIV testing ($p = 0.000$).

Husband's support and willingness for HIV testing

Table 4.
Cross-tabulation between husband's support and willingness to undergo HIV testing

Husband's support	Unwilling f (%)	Willing f (%)	Total f (%)
Poor	35 (89.7)	4 (10.3)	39 (100)
Good	10 (50.0)	10 (50.0)	20 (100)
Total	45	13	58

p -value = 0.001 ($\alpha = 0.05$). Among those with poor husband's support, 89.7% were unwilling to undergo HIV testing. Chi-square analysis confirmed a significant association between husband's support and willingness for HIV testing ($p = 0.001$).

Health worker support and willingness for HIV testing

Table 5.
Cross-tabulation between health worker support and willingness to undergo HIV testing

Health worker support	Unwilling f (%)	Willing f (%)	Total f (%)
Poor	38 (95.0)	2 (5.0)	40 (100)
Good	7 (38.9)	11 (61.1)	18 (100)
Total	45	13	58

p -value = 0.000 ($\alpha = 0.05$). Most women who received poor support from health workers were unwilling to undergo HIV testing (95.0%). The Chi-square test showed a significant relationship between health worker support and willingness to undergo HIV testing ($p = 0.000$).

Discussion

This study found that knowledge, attitude, husband's support, and health worker support were significantly associated with the willingness of pregnant women to undergo HIV testing at UPTD Puskesmas Nisam, North Aceh District. Pregnant women with poor knowledge were less likely to take an HIV test compared to those with good knowledge. This finding is consistent with health behavior theory, which explains that knowledge is a prerequisite for forming attitudes and actions (Notoatmodjo, 2010). Limited understanding of HIV transmission and the benefits of early detection can lead to misconceptions, fear, and stigma. These negative perceptions may foster unfavorable attitudes toward

HIV testing, reducing women's motivation to participate. In other words, low knowledge can trigger negative attitudes, which ultimately lead to avoidance behavior, such as refusing HIV testing.

Attitude was also significantly associated with HIV testing willingness. Respondents with negative attitudes were more likely to refuse HIV testing. This aligns with the Health Belief Model, which states that negative perceptions and fear of stigma decrease an individual's intention to engage in preventive health behaviors (Glanz et al., 2015). Similar findings were reported by Dewi (2021) and Gozali et al. (2022), who found that women with negative perceptions of HIV testing tended to avoid screening during pregnancy. Negative attitudes often stem from misinformation and fear of discrimination, indicating that effective health education and stigma-reduction efforts are essential to improve testing uptake.

Husband's support was another important factor. Pregnant women who did not receive sufficient support from their husbands were significantly less likely to undergo HIV testing. This finding is consistent with previous studies showing that partner support plays a crucial role in maternal health decision-making, including HIV testing (Fitri, Azizah & Sinaga, 2025). In cultural contexts such as Aceh, the husband's approval and encouragement strongly influence a woman's willingness to seek health services.

Furthermore, health worker support was also significantly associated with HIV testing willingness. Respondents who received inadequate information, counseling, and encouragement from health workers were less likely to undergo testing. This result is consistent with Wibowo, Rima & Rabbania (2021), who emphasized the importance of health providers in motivating pregnant women to take HIV tests. Health workers serve as key agents in delivering education, reducing stigma, and fostering trust between patients and health services.

When compared with studies conducted in regions with lower levels of stigma, such as Central Java and Malaysia, the level of willingness to undergo HIV testing in this study was lower. Rahmawati et al. (2022) found that 60% of pregnant women in Central Java were willing to be tested after receiving counseling from health workers. Similarly, Tan et al. (2021) in Malaysia reported that higher community awareness and supportive social norms were associated with increased HIV testing participation. These differences suggest that in regions such as North Aceh, strong socio-religious norms and persistent stigma still hinder open discussion about HIV and testing behavior.

Overall, these findings highlight that the willingness of pregnant women to undergo HIV testing is influenced not only by individual factors such as knowledge and attitude but also by social support and the broader cultural environment. Strengthening health education, involving husbands in counseling sessions, and empowering health workers to provide stigma-free services are essential strategies to enhance HIV testing uptake and reduce the risk of mother-to-child HIV transmission.

4. Conclusion

This study concludes that knowledge, attitude, husband's support, and health worker support are significant determinants of pregnant women's willingness to undergo HIV testing at UPTD Puskesmas Nisam, North Aceh District. The contribution of this research lies in strengthening the evidence that psychosocial and informational factors are central to maternal health behavior, particularly in HIV prevention programs.

To translate these findings into practice, strategies should be integrated into the antenatal care (ANC) setting. Health workers can incorporate HIV education and counseling into routine ANC visits, encourage husband participation during health education sessions, and provide stigma-free communication to build trust and acceptance among pregnant women. Regular training and supervision of midwives should also be implemented to strengthen their capacity to deliver effective counseling and promote HIV testing.

These integrated efforts within ANC services can improve testing uptake, enhance family involvement, and ultimately prevent mother-to-child transmission. Nevertheless, this study is limited by its relatively small sample size and cross-sectional design, which may restrict generalization and causal interpretation. Future research should explore broader populations and adopt longitudinal or interventional approaches to confirm these associations.

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