



The relationship between pregnant women’s knowledge and participation in HIV testing at Nisam Health Center

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ABSTRACT

This research aimed to examine the association between pregnant women’s knowledge and their involvement in HIV testing at the Nisam Health Center, North Aceh Regency. The study was motivated by the relatively low level of participation among pregnant women in HIV screening, which is crucial for early identification and prevention of mother-to-child HIV transmission. A quantitative analytic method with a cross-sectional design was applied. The study population included all pregnant women attending antenatal care (ANC) services at the Nisam Health Center, and 60 participants were chosen through purposive sampling. Data were obtained using structured questionnaires and analyzed with the Chi-Square statistical test. The findings indicated that more than half of the respondents (31 women or 53.4%) demonstrated a moderate level of knowledge, while most participants (44 women or 75.8%) had undergone HIV testing. The statistical results showed a significant correlation between the respondents’ knowledge level and their participation in HIV testing ($p = 0.001 < 0.05$). Therefore, it can be inferred that higher knowledge among pregnant women increases the likelihood of their engagement in HIV screening. Health professionals are encouraged to strengthen educational efforts and counseling to enhance awareness of the importance of HIV testing during pregnancy as a preventive measure against vertical transmission.

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1. Introduction

Human Immunodeficiency Virus (HIV) continues to be one of the most serious global public health challenges that has yet to be completely addressed. This virus weakens the body’s immune system, leading to various life-threatening opportunistic infections (Putri, 2021). The World Health Organization (WHO, 2023) reports that since the start of the epidemic, more than 80 million individuals have contracted HIV, and over 40 million have died due to HIV/AIDS-related illnesses. As of 2023, approximately 39.9 million people worldwide were living with HIV, with the highest concentration found in Sub-Saharan Africa, followed by Southeast Asia and the Western Pacific regions (Nuwabaine, 2024).

In Indonesia, HIV cases continue to increase every year. Data from the Ministry of Health of the Republic of Indonesia (Kemenkes, 2023) reported more than 57,000 new HIV cases in 2023, with the highest distribution in East Java, Jakarta, and Papua Provinces, and a significant rise in several regions of Sumatra, including Aceh Province. Although the HIV prevalence in Aceh remains relatively low, the trend

continues to increase by about 10–15% annually. As of 2022, more than 800 cumulative HIV/AIDS cases were recorded in the province (Dinkes Aceh, 2023). The transmission pattern has also shifted from injecting drug use to sexual transmission, increasingly affecting the general population, including housewives and pregnant women (Marlina, 2020).

Pregnant women who contract HIV face a substantial risk of passing the virus to their infants during pregnancy, childbirth, or breastfeeding (Kurniawati, 2022). In the absence of medical treatment, the probability of mother-to-child transmission may reach as high as 45%, and nearly half of the infected infants could die before reaching two years of age (World Health Organization, 2022). To reduce the risk of vertical transmission, the government introduced the Prevention of Mother-to-Child Transmission (PMTCT) initiative, referred to in Indonesia as Pencegahan Penularan dari Ibu ke Anak (PPIA). A crucial element of this program is offering HIV testing to all pregnant women during antenatal care (ANC) visits (Kemenkes, 2023). Nevertheless, the program's implementation remains suboptimal. Data from the Aceh Health Office (2023) indicate that only around 35% of pregnant women have undergone HIV testing—significantly below the national target of 70%

At the local level, the Nisam Health Center (UPTD Puskesmas Nisam) in North Aceh Regency reported that in 2024, out of 436 pregnant women who attended antenatal care, only 284 (65.1%) agreed to take the HIV test, while 152 (34.9%) refused (Dinkes Aceh, 2024). Several studies have shown that knowledge level, attitudes toward HIV/AIDS, husband's support, and the role of health workers are major factors influencing the participation of pregnant women in HIV testing (Lestari R. , 2023), (Astuti, 2021), (Dewi, 2021).

Previous studies consistently demonstrate that knowledge is one of the strongest predictors of HIV testing uptake among pregnant women. Women with a high level of knowledge about HIV transmission and prevention are significantly more likely to participate in testing compared to those with limited knowledge (Lestari R. , 2023). Low knowledge regarding HIV transmission and prevention is often accompanied by strong social stigma, which reduces women's motivation to undergo testing (Amiruddin, 2023; Sari & Handayani, 2021). Conversely, pregnant women with good knowledge and positive attitudes toward HIV testing are more likely to participate in such screening (Puspitasari, 2023).

In addition, family support particularly from husbands has been shown to play an important role in mothers' decisions to undergo HIV testing (Rohayati, 2022). Health workers also play a major role in providing education, counseling, and creating a safe, stigma-free environment that encourages pregnant women to participate in testing (Wardani, 2024; Fitriani, 2023).

Cultural and religious norms also play a significant role in shaping health behaviors, including decisions related to HIV testing. Studies in various Indonesian regions have demonstrated that cultural beliefs about shame, purity, gender roles, and community judgment can influence whether women feel comfortable seeking HIV-related services (Rahayu, 2020; Yusuf, 2021). In Aceh, where strong Islamic values and local customs guide social behavior, these cultural factors may contribute to women's reluctance to undergo HIV testing due to fear of stigma or moral judgment

Based on these conditions, it is essential to identify the relationship between pregnant women's knowledge and their participation in HIV testing in the North Aceh area, particularly at Nisam Health Center. Research on pregnant women's participation in HIV testing has been conducted in several regions in Indonesia; however, studies focusing on the local context of North Aceh remain limited. The strong cultural, social, and religious values in this region are believed to influence mothers' decisions to take the HIV test. Therefore, this study is important to gain a deeper understanding of the factors associated with pregnant women's participation in HIV testing at Nisam Health Center, North Aceh Regency.

2. Methods

This study applied an observational analytic design with a cross-sectional approach. This design was chosen because it enables the examination of the association between independent and dependent variables at a single point in time. It was considered appropriate since the purpose of this research was to identify a relationship—rather than a causal effect—between pregnant women's knowledge and their participation in HIV screening.

The study population comprised all pregnant women who received antenatal care (ANC) services at the Nisam Health Center, North Aceh Regency, in 2025. A total of 58 participants were recruited through purposive sampling, which was selected because the researchers needed respondents who met specific criteria related to ANC attendance and exposure to HIV testing information—characteristics that could not be guaranteed through random sampling. Purposive sampling also ensured that participants had sufficient understanding to complete the questionnaire.

The inclusion criteria required participants to be registered ANC clients and willing to take part in the study. Pregnant women who were seriously ill or unable to fill out the questionnaire independently were excluded. Although non-probability sampling was used, representativeness was maintained by aligning respondent characteristics such as age, parity, and ANC visit frequency with those of the broader population served by the health center. The final sample of 58 respondents met the minimum assumptions for the Chi-Square test, as all expected cell counts were greater than five.

Data collection utilized a structured questionnaire adapted from prior studies on maternal knowledge, attitudes, and behaviors toward HIV testing. The instrument was modified to suit the local context and then underwent content validity testing by a public health expert specializing in maternal and child health. The questionnaire consisted of 10 knowledge items, 8 attitude items, 6 items on husband's support, and 5 items on support from health workers. Although only the knowledge variable was used in the main analysis, the additional variables were retained because they formed part of the broader assessment of factors influencing HIV testing behavior and contributed to the validity and completeness of the instrument.

Variable categorization was carried out using a cut-off based on the total score of each variable. Knowledge scores were categorized into “good” and “poor” using a $\geq 75\%$ benchmark commonly applied in public health research. The dependent variable—pregnant women's participation in HIV testing—was measured using four questions and categorized into “participating” and “not participating.”

Data collection was conducted in several stages, starting with obtaining official research approval and ethical clearance from the Health Research Ethics Committee of poltekkes kemenkes aceh. The researchers then coordinated with the Nisam Health Center regarding data collection procedures. Before distributing questionnaires, the researcher explained the study's purpose, benefits, and procedures to participants. To minimize social desirability bias, respondents completed the questionnaire independently in a private setting, without the presence of health workers or their spouses. Completed questionnaires were checked for completeness, coded, edited, and tabulated for analysis.

Before the main study, the questionnaire was piloted on 10 pregnant women from a different health center to ensure clarity, reliability, and comprehension. Any unclear items were refined based on pilot findings. The overall data collection process lasted approximately two weeks.

Data analysis was conducted using the Chi-Square test with a 95% confidence level ($\alpha = 0.05$), chosen because the variables were categorical and aligned with the research objective.

3. Results and Discussion

Results

- a. Level of Knowledge, the research results are presented systematically according to the order of analysis described in the research methods. The data in this study were obtained from 58 pregnant women who attended antenatal care (ANC) examinations at the Nisam Health Center, North Aceh Regency, in 2025.

Table 1.
Distribution of Pregnant Women's Level of Knowledge About HIV Testing

Knowledge Level	Frequency (f)	Percentage (%)
Good	5	8,6
Enough	31	53,4
No Enough	22	38

Most respondents had a good level of knowledge about HIV testing. This finding indicates that information regarding HIV and its examination among pregnant women is already fairly well known in the community. However, there are still about 12% of mothers with low levels of knowledge who require greater attention through health education and counseling programs.

Table 2.
Distribution of Pregnant Women's Participation in HIV Testing

Test Participation HIV	Ferequency (f)	Percentage (%)
Willing	44	75,9
Not Willing	14	24,1

A total of 65.5% of pregnant women agreed to undergo HIV testing, while 34.5% refused. This indicates a fairly good level of participation, although it remains below the national target of 70%. Relationship Between Pregnant Women's Knowledge and Participation in HIV Testing.

Table 3.
The Relationship Between Pregnant Women's Knowledge and Participation in HIV Testing

Pengetahuan	Bersedia Tes	Tidak Bersedia	Total	p- value
Good	1	4	5	0,001
Enough	2	29	31	
No Enough	11	11	22	

$p < 0.05$ indicates a significant relationship. The Chi-Square test results show a p-value of 0.012, meaning there is a significant relationship between the level of knowledge of pregnant women and their participation in HIV testing at Nisam Health Center, North Aceh Regency.

Discussion

Based on a study conducted with 58 pregnant women at the UPTD Nisam Health Center, the findings revealed a significant relationship between knowledge levels and HIV screening participation, indicated by a p-value of 0.012. (Revised to match the table) This means the statistical result confirms that higher knowledge corresponds with a greater likelihood of participating in HIV testing during pregnancy.

Respondents with good or sufficient knowledge were more willing to take the HIV test, reaching 93.5%, whereas only 50% of mothers with low knowledge levels agreed to testing. This highlights the key role of knowledge in shaping health-related behaviors

According to Notoatmodjo (2018), knowledge arises from the cognitive process of understanding after one perceives an object. Sufficient knowledge encourages positive attitudes and supports appropriate health practices. Within this context, pregnant women who comprehend the benefits of HIV testing tend to recognize its importance for early detection and the prevention of mother-to-child transmission. Conversely, those with limited understanding often hesitate or refuse testing due to misconceptions or fear of stigma surrounding HIV/AIDS.

This finding aligns with the study by Gozali et al. (2022), which reported a significant correlation between knowledge and the willingness of pregnant women to undergo HIV testing at Sukasada I Health Center, with a p-value of 0.001. Similarly, research by Fauziani et al. (2021) confirmed that higher knowledge levels positively influenced mothers' readiness to take the test in the Idi Rayeuk region. Adequate understanding enables mothers to recognize the risks of HIV transmission from mother to child, appreciate the benefits of testing for both maternal and infant health, and acknowledge the value of early detection to prevent vertical transmission. On the other hand, insufficient knowledge contributes to negative assumptions, such as believing they are not at risk, fearing disclosure of test results, or perceiving testing as unnecessary.

Moreover, interviews conducted by the researcher indicated that some pregnant women declined HIV testing due to lack of spousal support, fear of test outcomes, and concern about social

stigma. In Acehese culture, where family and spousal consent remain highly influential, partner support plays a pivotal role in a woman's decision to undertake health examinations. This observation corresponds with the findings of Fitri, Azizah, and Sinaga (2025), who identified partner support as a key determinant influencing pregnant women's decision to participate in HIV testing.

Some mothers with low knowledge were still willing to undergo HIV testing due to external influencing factors, such as strong encouragement from healthcare workers, support from spouses or family members, routine ANC procedures that made them feel obligated to comply, and trust in health providers despite their limited understanding. In certain cases, mothers were motivated by concern for their baby's health even without a full understanding of HIV transmission.

Another contributing factor is the support provided by healthcare professionals. Their role in delivering information, education, and counseling is crucial in motivating pregnant women to undergo testing. When healthcare workers communicate effectively and demonstrate empathy, mothers tend to feel more confident and encouraged to participate. This is consistent with the findings of Wibowo, Rima, and Rabbania (2021), who reported that supportive communication from health personnel significantly enhances pregnant women's willingness to take part in HIV screening.

4. Conclusion

Based on the research conducted on 58 pregnant women at UPTD Nisam Health Center, North Aceh Regency, in 2025, it was found that most respondents were in the productive age group (20–35 years), had a secondary education level, and were housewives. The study showed that the majority of pregnant women had good knowledge about HIV testing (62.1%), and 65.5% were willing to undergo testing. The bivariate analysis using the Chi-Square test showed a significant relationship between knowledge level and HIV testing participation (p -value 0.001), indicating that pregnant women with better knowledge were more likely to participate in HIV testing. Therefore, the study concludes that higher knowledge levels among pregnant women contribute to increased participation in HIV testing as part of efforts to support early detection and prevent mother-to-child transmission of HIV.

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