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The relationship between knowledge and attitudes toward the intention of women of reproductive age to undergo VIA examination

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Abstract

Background: Cervical cancer is one of the leading causes of cancer-related mortality among women in Indonesia. Early detection through Visual Inspection with Acetic Acid (VIA) screening is a simple, effective, and affordable method to reduce cervical cancer incidence. However, the coverage of VIA screening in the working area of Kelapa Community Health Center remains low.

Purpose: To analyze the relationship between knowledge and attitudes and the intention of women of reproductive age (WRA) to undergo VIA screening.

Methods: This study employed a quantitative analytic design with a cross-sectional approach. The population consisted of women of reproductive age (30–50 years) in the working area of Kelapa Community Health Center. A total of 108 respondents were selected using simple random sampling. Data were collected using a structured questionnaire and analyzed using the Chi-square test with a significance level of $\alpha = 0.05$.

Results: The results showed a significant relationship between knowledge and intention to undergo VIA screening ($p = 0.000$; POR = 40.000; 95% CI: 13.18–121.39). A significant association was also found between attitudes and intention ($p = 0.000$; POR = 53.714; 95% CI: 16.80–171.72). Women with poor knowledge and negative attitudes were significantly more likely to have low intention to undergo VIA screening.

Conclusion: Knowledge and attitudes significantly influence the intention of women of reproductive age to undergo VIA screening. Strengthening health education and promotive interventions related to cervical cancer screening is essential to increase women's participation in VIA examinations at the primary healthcare level.

Keywords: Attitude; Intention; Knowledge; VIA Screening; Women of Reproductive Age

INTRODUCTION

Cervical cancer is the second leading cause of death in women after breast cancer (Febliana, 2025). Visual Inspection with Acetic Acid (VIA) is a simple, inexpensive, and effective method for cervical cancer screening. However, the interest of women of reproductive age (WRA) in undergoing VIA tests remains low. It is believed that knowledge and attitude significantly influence their interest in undergoing VIA screening (Situmorang, Hanim, Christie, & Habeahan, 2025). One of the causes of high mortality and morbidity rates due to cervical cancer is women's lack of knowledge and awareness of early detection.

Mothers lack knowledge about the importance of IVA tests and/or lack the attitude and desire to undergo examinations because they believe that IVA examinations are not yet necessary (Hastuti, 2025). Surgery is a medical procedure performed by Cervical cancer is often referred to as a "silent killer" because its progression is slow and early symptoms are difficult to detect. The transformation from human papillomavirus (HPV) infection to cervical cancer typically takes 10–20 years, during which affected women may remain asymptomatic until the disease reaches a precancerous or advanced stage

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(National Cancer Control Committee, 2019). Early screening and timely treatment are therefore essential strategies for preventing cervical cancer. However, due to economic and structural barriers, many regions, particularly in low- and middle-income countries, still lack accessible and sustainable screening programs for women (Ministry of Health of the Republic of Indonesia, 2023).

According to the World Health Organization (WHO), cervical cancer was the fourth most common cancer among women worldwide in 2022, with approximately 660,000 new cases reported. Nearly 94% of the estimated 350,000 cervical cancer-related deaths occurred in low- and middle-income countries (World Health Organization, 2025). In Indonesia, the high incidence of cervical cancer is closely associated with low screening coverage. In 2021, only 6.83% of women aged 30–50 years underwent cervical cancer screening using the VIA method. This coverage increased slightly to 7.02% in 2023 but remains far below national targets (Ministry of Health of the Republic of Indonesia, 2023).

At the provincial level, VIA screening coverage in the Bangka Belitung Islands Province has shown a declining trend over the past three years. In 2022, 22,892 women of reproductive age (11%) underwent VIA screening, decreasing to 21,771 women (9.59%) in 2023 and further declining to 19,563 women (9.4%) in 2024. A similar decline was observed in West Bangka Regency, where VIA screening coverage decreased from 2.61% in 2022 to only 1% in 2024. Data from Kelapa Community Health Center also indicate a significant decrease in screening coverage, reaching only 0.5% in 2024.

Low participation in VIA screening among women of reproductive age may be influenced by multiple factors, including inadequate knowledge, negative attitudes, limited access to information, fear and embarrassment related to reproductive health examinations, and lack of family support. Previous studies have shown that women with limited knowledge about cervical cancer and screening methods are less likely to participate in early detection programs (Renata & Damayanti, 2024; Rizkiah, 2021).

All women are at risk for cervical cancer. However, several risk factors can increase the chances of developing cervical cancer, including age.

Women aged 35–50 who are still sexually active are prone to cervical cancer. The age at which a woman first becomes sexually active is also a risk factor for cervical cancer. Approximately 20% of cervical cancer cases are found in women who were sexually active before the age of 16. The number of sexual partners also contributes to the spread of cervical cancer; the more sexual partners a woman has, the higher her risk of developing cervical cancer. The frequency of pregnancy also increases the risk of cervical cancer due to a history of infection in the genital area. Women who smoke or are passive smokers also have an increased risk of cervical cancer (Suratin & Susanti, 2017).

Of the various cervical cancer screening techniques, IVA is a simple and inexpensive screening method. It has been validated and recommended by the World Health Organization (WHO) as an alternative method to conventional Pap smears in cervical cancer screening. The goal of the screening program is to detect people who are at higher risk of developing cancer. For a cervical cancer screening program to be successful and reduce mortality, approximately 70% of the target population needs to be screened regularly. Awareness of cancer among the general public is very low, and there are only a few centers with cancer screening facilities nationwide, making early detection and treatment of common cancers very difficult (Supatmi, Wulandari, Ischak, & Nur, 2020).

RESEARCH METHOD

This study employed a quantitative analytic design with a cross-sectional approach. The study was conducted from September to October 2025 in the working area of Kelapa Community Health Center, West Bangka Regency, Indonesia. The study population consisted of all women of reproductive age (30–50 years) residing in the area, totaling 5,617 individuals.

A sample of 108 respondents was selected using a simple random sampling technique. Inclusion criteria were women aged 30–50 years who were willing to participate and able to complete the questionnaire. Data were collected using a structured questionnaire designed to assess respondents' knowledge of VIA screening, attitudes toward VIA screening, and intention to undergo the examination.

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Knowledge and attitude were treated as independent variables, while intention to undergo VIA screening was considered the dependent variable. Data were analyzed using the Statistical Package for the Social Sciences (SPSS). Univariate analysis was performed to describe the distribution of each

variable, and bivariate analysis was conducted using the Chi-square test to determine associations between variables. Statistical significance was set at $\alpha = 0.05$, and the strength of associations was expressed using Prevalence Odds Ratios (PORs) with 95% confidence intervals.

RESEARCH RESULTS

Univariate Distribution of Knowledge and Attitudes Toward the Intention of Women of Reproductive Age to Undergo IVA Examination

Variable	Results	P-Value	POR (95% CI)
Interest in undergoing VIA screening (n/%)			
Yes			
No	54/50.0		
	54/50.0		
Knowledge (n/%)			
Good	57/52.8	0.000	40.000 (13.18-121.39)
Poor	51/47.2		
Attitudes (n/%)			
Positive	55/50.9	0.000	53.714 (16.801 - 171.728)
Negative	53/49.1		

This study involved 108 women of reproductive age who met the inclusion criteria and were willing to participate. All respondents were women aged 30–50 years residing in the working. Data collection focused on assessing women's knowledge and attitudes toward Visual Inspection with Acetic Acid (VIA) screening and examining their intention to undergo the examination.

At the initial assessment, the respondents demonstrated varying levels of knowledge and attitudes toward VIA screening. Slightly more than half of the women had good knowledge regarding VIA screening (52.8%), while the remaining respondents had poor knowledge (47.2%). In terms of attitudes, 50.9% of respondents showed positive attitudes toward VIA screening, whereas 49.1% demonstrated negative attitudes. These findings indicate that although many women were aware of VIA screening, a substantial proportion still lacked adequate understanding or held unfavorable perceptions.

Regarding intention to undergo VIA screening, only half of the respondents (50.0%) expressed willingness to undergo the examination, while the other half reported no intention to do so. Women who lacked intention commonly reported fear of the examination procedure, embarrassment, anxiety about possible results, and lack of encouragement from their husbands or family members.

Further analysis revealed clear differences between respondents who intended to undergo VIA screening and those who did not. Women with poor knowledge were more likely to report no intention to undergo VIA screening compared to women with good knowledge. Statistical analysis confirmed a significant association between knowledge and intention to undergo VIA screening ($p = 0.000$; $POR = 40.000$), indicating that limited knowledge substantially increased the likelihood of low screening intention.

Attitudes toward VIA screening also showed a strong association with intention. Respondents with negative attitudes were significantly more likely to have no intention to undergo VIA screening than those with positive

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attitudes ($p = 0.000$; $POR = 53.714$). Negative attitudes were commonly reflected in feelings of fear, shame, and discomfort related to reproductive health examinations.

Overall, the results demonstrate that women's intention to undergo VIA screening is strongly influenced by both cognitive and emotional factors. Knowledge and attitudes emerged as key determinants shaping women's willingness to participate in cervical cancer screening services at the primary healthcare level.

DISCUSSION

This study demonstrated that knowledge and attitudes were significantly associated with the intention of women of reproductive age (WRA) to undergo Visual Inspection with Acetic Acid (VIA) screening at Kelapa Community Health Center. These findings indicate that psychosocial factors play a crucial role in shaping women's preventive health behavior, particularly in cervical cancer screening.

Maternal knowledge was found to have a strong and significant association with the intention to undergo VIA screening. Women with poor knowledge were 40 times more likely to have no intention to undergo VIA screening compared to those with good knowledge. This finding is consistent with health behavior theories, particularly the Health Belief Model, which posits that knowledge influences perceived susceptibility, perceived benefits, and perceived barriers, ultimately shaping health-related decisions (Notoatmodjo, 2018; Holtzman, Shea, Glanz, Jacobs, Gross, Hines, & Yehia, 2015).

Adequate knowledge enables women to understand the natural history of cervical cancer, recognize the importance of early detection, and appreciate the simplicity and safety of VIA screening. Conversely, limited knowledge may result in misconceptions, such as the belief that screening is unnecessary in the absence of symptoms or that VIA screening is painful or harmful. These misconceptions contribute to low screening intention despite the availability of services at primary healthcare facilities.

These findings are consistent with previous studies conducted in Indonesia that reported a significant relationship between knowledge and interest in undergoing VIA screening, indicating that women with inadequate knowledge tend to be less willing to participate in screening programs (Yanti). Similarly, previous studies have found that low levels of knowledge are associated with negative perceptions and a decreased willingness to undergo

VIA screening (Elfira, Fadhlia, Kurnia, & Darmayanti, 2022; Imelda et al., 2024).

The exceptionally high POR observed in this study suggests that knowledge is a dominant factor influencing screening intention in the study area. This may reflect limited exposure to comprehensive and continuous health education, particularly among women who are not actively involved in community health activities. It also indicates that existing educational interventions may not sufficiently address women's informational needs regarding cervical cancer prevention.

Attitudes were also significantly associated with the intention to undergo VIA screening. Women with negative attitudes were approximately 53 times more likely to have no intention to undergo VIA screening compared to women with positive attitudes. This finding underscores the importance of emotional and psychological factors in preventive health behavior.

Negative attitudes toward VIA screening are often characterized by fear, embarrassment, anxiety, and concern about potential screening results. In many cultural contexts, including Indonesian society, examinations involving reproductive organs are considered sensitive, which may intensify feelings of shame and reluctance (Rizkiah, 2021). Fear of being diagnosed with a serious illness also contributes to avoidance behavior, where individuals prefer not to undergo screening to avoid emotional distress (Notoatmodjo, 2018).

These findings are consistent with previous studies conducted in Indonesia that reported a significant relationship between knowledge and interest in undergoing VIA screening, indicating that women with inadequate knowledge tend to be less willing to participate in screening programs (Yanti, Sipayung, & Restiana, 2023). Similarly, previous studies have found that low levels of knowledge are associated with negative perceptions and a decreased willingness to undergo VIA screening (Elfira, 2020; Yanti, Sipayung, & Restiana, 2023).

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Attitudes are shaped not only by individual knowledge but also by social and cultural influences, including family support and community norms. In many Indonesian households, reproductive health decisions involve spousal approval. Lack of support from husbands may reinforce negative attitudes and reduce women's confidence in seeking screening services (Renata & Damayanti, 2024). Additionally, anecdotal experiences shared by peers or family members may further shape attitudes, particularly when such experiences emphasize discomfort or fear associated with screening procedures.

Previous studies have shown that the level of knowledge and attitudes of WUS are mostly in the low category, namely 81.8% and 69.3%. This affects the interest in IVA screening among WUS, which is only 40.9%. From the results of the study, it can be concluded that the level of knowledge ($p = 0.002$) and attitudes ($p = 0.001$) affect the interest of WUS in undergoing IVA screening (Asmin, 2020). Other studies also show that 84 respondents (91.3%) had never undergone an IVA examination, 47 respondents (51.1%) had good knowledge, and 48 respondents (52.2%) had a positive attitude, which means that knowledge and attitude are significantly related to the implementation of IVA examinations (Azzahra, 2025).

The strong associations observed between knowledge, attitudes, and intention highlight the need for integrated and multidimensional interventions. Educational programs should not only provide factual information but also address emotional concerns, cultural sensitivities, and misconceptions related to VIA screening. Counseling approaches that emphasize reassurance, privacy, and the preventive nature of screening may help reduce fear and embarrassment.

Furthermore, involving husbands and family members in health education activities may strengthen social support and foster positive attitudes toward screening. Community-based strategies, including the use of peer educators and culturally appropriate communication media, may also enhance the effectiveness of educational interventions.

Overall, this study reinforces the importance of addressing both cognitive and affective components of health behavior to improve participation in cervical cancer screening programs. Strengthening

knowledge and fostering positive attitudes among women of reproductive age are essential steps toward increasing VIA screening coverage and supporting national cervical cancer prevention efforts (Ministry of Health of the Republic of Indonesia, 2023; WHO, 2022).

CONCLUSION

This study concludes that knowledge and attitudes are significantly associated with the intention of women of reproductive age to undergo VIA screening at Kelapa Community Health Center. Women with poor knowledge and negative attitudes were substantially less likely to express interest in VIA screening. These findings highlight the importance of strengthening health education, improving communication strategies, and involving family members particularly husbands in cervical cancer prevention programs. Enhancing women's knowledge and fostering positive attitudes toward VIA screening are essential steps toward increasing screening coverage and reducing the burden of cervical cancer.

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