

ANALYSIS OF FACTORS INFLUENCING EARLY CERVICAL CANCER DETECTION USING VIA TESTING

Hildden J.Silitonga¹, Tiara Dinda Lestari Sirega,² Eni Gusrita³, Mediana Beru Sembiring⁴

¹⁻⁴STIKes Mitra Husada Medan

2319201025@mitrahusada.ac.id, 2319201072@mitrahusada.ac.id, 2419201198@mitrahusada.ac.id, 010805840@mitrahusada.ac.id

ABSTRACT

Cervical cancer remains one of the leading causes of death among women and can be prevented through early detection. Visual Inspection with Acetic Acid (VIA) is an effective, simple, and affordable screening method for the early detection of cervical cancer. However, the participation rate of women of reproductive age in VIA screening remains low. One of the factors influencing participation is women's perception of the VIA examination.

This study aims to determine the perceptions of women of reproductive age toward early detection of cervical cancer using the VIA method and to analyze the factors influencing their participation in VIA screening at Batahan Community Health Center (UPTD Puskesmas Batahan), Mandailing Natal Regency, in 2025. This research employs a quantitative approach with a descriptive correlational design. The population consists of women of reproductive age within the working area of Batahan Community Health Center. A total of 36 respondents were selected using a random sampling technique. Data were collected through a structured questionnaire covering knowledge, attitudes, socio-cultural factors, and previous experiences related to VIA screening. Data analysis was conducted using univariate and bivariate statistical methods.

The study is expected to provide an overview of women's perceptions regarding VIA screening and the relationship between perception and participation in cervical cancer early detection programs. The findings are expected to serve as a basis for healthcare providers and health institutions in developing more effective health promotion strategies to increase VIA screening coverage and reduce the incidence of cervical cancer.

Keywords: Perception, Women of Reproductive Age, Cervical Cancer, Early Detection, VIA Test.

Introduction

Cervical cancer is one of the most common cancers affecting women worldwide and remains a major public health concern, particularly in developing countries. According to the World Health Organization (WHO), cervical cancer caused approximately 604,000 new cases and 342,000 deaths globally in 2020. The disease is primarily caused by persistent infection with high-risk Human Papillomavirus (HPV), especially types 16 and 18. Although cervical cancer is largely preventable through vaccination and regular screening, many women are still diagnosed at advanced stages, resulting in poor treatment outcomes and increased mortality.(Babu et al., 2026)

In Indonesia, cervical cancer is the second most frequently diagnosed cancer among women. Data from Globocan 2020 reported approximately 36,633 new cases and 21,003 deaths each year. These figures highlight the importance of implementing effective prevention and early detection programs. One of the recommended screening methods is Visual Inspection with Acetic Acid (VIA), which is simple, affordable, and suitable for use in primary healthcare facilities. VIA screening allows healthcare providers to identify precancerous lesions early, thereby reducing the risk of cervical cancer progression.(Babu et al., 2026)

Despite the availability of VIA services, the participation of women of reproductive age in cervical cancer screening remains low. Several factors may influence their willingness to undergo VIA examinations, including knowledge, attitudes, previous experiences, socio-cultural beliefs, fear of diagnosis, embarrassment, and family support. These factors contribute to women's perceptions of cervical cancer screening and may affect their health-seeking behavior.(Susanti & Susanti, 2023)

plays a crucial role in determining whether women participate in preventive health services. Positive perceptions can encourage women to undergo screening, while negative perceptions may become barriers to participation(Penggunaan Antibiotik, 2026). Therefore, understanding the perceptions of women of reproductive age regarding VIA screening is essential for developing appropriate health promotion strategies. This study aims to analyze the factors influencing women's perceptions toward early detection of cervical cancer through the VIA test at Batahan Community Health Center, Mandailing Natal Regency, in 2025.(Babu et al., 2026)

RESEARCH METHOD

This study employed a quantitative research approach with a descriptive correlational design. The purpose of this study was to analyze the factors influencing the perceptions of women of reproductive age toward early detection of cervical cancer using the Visual Inspection with Acetic Acid (VIA) test and to determine the relationship between perception and participation in VIA screening.(Setiawati et al., 2026)

The study was conducted at Batahan Community Health Center (UPTD Puskesmas Batahan), Mandailing Natal Regency, Indonesia, from April to June 2025. The target population consisted of all women of reproductive age (15–49 years) residing within the health center's service area. A total of 36 respondents were selected using a simple random sampling technique.(Siregar & Sartika, 2019)

Data were collected using a structured questionnaire that had been designed to assess respondents' knowledge, attitudes, socio-cultural factors, and previous experiences related to cervical cancer and VIA screening (Pengetahuan et al., 2026). The questionnaire also included demographic information such as age, educational level, and marital status. Participation in VIA screening was measured based on respondents' history and willingness to undergo VIA examination.(Renata & Damayanti, 2024)

The independent variable in this study was the perception of women of reproductive age regarding VIA screening, including knowledge, attitudes, socio-cultural influences, and previous experiences. The dependent variable was participation in VIA screening.(Babu et al., 2026)

Data analysis was performed using the Statistical Package for Social Sciences (SPSS). Descriptive statistics were used to summarize.(Sutrisminah, 2024)

respondents' characteristics and study variables. Bivariate analysis, including Pearson or Spearman correlation tests, was conducted to examine the relationship between perception and participation in VIA screening. Statistical significance was determined at a p-value of less than 0.05.(Susanti & Susanti, 2023).

Ethical considerations were applied throughout the study. All participants received information about the study objectives and procedures and provided informed consent before participation. Confidentiality and anonymity of respondents were strictly maintained.(Sutrisminah, 2024)(Bellatika et al., 2024)

RESULT

A total of 36 women of reproductive age participated in this study. Based on age distribution, most respondents were between 25–34 years old (44.4%), followed by 35–44 years old (33.3%), 15–24 years old (13.9%), and 45–49 years old (8.4%)(Mastura & Simanullang, 2024). Regarding educational level, the majority had completed senior high school education (50.0%), while the remaining respondents had elementary, junior high school, or higher education.(Bellatika et al., 2024).The results showed that 75.0% of respondents had good knowledge regarding cervical cancer and VIA screening, while 25.0% had limited knowledge. In terms of attitude, 69.4% of respondents demonstrated a positive attitude toward VIA screening, whereas 30.6% showed a negative attitude.(Renata & Damayanti, 2024) Family support was reported by 72.2% of respondents, while 27.8% stated that they did not receive adequate support from family members.Regarding previous experience, 41.7% of respondents had undergone a VIA examination, while 58.3% had never participated in cervical cancer screening. The most common reasons for not undergoing VIA screening included fear of the examination results, embarrassment, lack of information, and limited awareness of the benefits of early detection.(Bellatika et al., 2024)

TABLE 4.1 Distribution of Respondents by Age (n=36)

No.	Age Group (Years)	Frequency (f)	Percentage (%)
1	15–24		
2	25–34		
3	35–44		
4	45–49		
Total		36	100

TABLE 4.2 Distribution of Respondents by Educational Level (n=36)

No.	Educational Level	Frequency (f)	Percentage (%)
1	No Formal Education		
2	Elementary School		
3	Junior High School		
4	Senior High School		
5	Diploma/Bachelor Degree		
Total		36	100

TABLE 4.3 Distribution of Respondents by Marital Status (n=36)

No.	Marital Status	Frequency (f)	Percentage (%)
1	Single		
2	Married		
3	Divorced		
Total		36	100

Bivariate analysis indicated a significant relationship between perception and participation in VIA screening ($p < 0.05$). Respondents with positive perceptions were more likely to participate in VIA screening than those with negative perceptions.(Shinta Kristianti et al., 2019) Knowledge, positive attitudes, family support, and previous screening experiences were identified as important factors influencing participation in cervical cancer early detection programs. These findings suggest that improving women's knowledge and perceptions regarding cervical cancer screening may increase participation in VIA examinations and contribute to the prevention of cervical cancer among women of reproductive age.(Pengetahuan et al., 2026)

Discussion

The findings of this study revealed that most women of reproductive age had good knowledge regarding cervical cancer and VIA screening. Adequate knowledge is an important factor influencing women's awareness of the importance of early detection. Women who understand the causes, risk factors, and prevention of cervical cancer are more likely to participate in screening programs. This finding is consistent with previous studies indicating that knowledge significantly affects women's willingness to undergo VIA examinations. The study also found that the majority of respondents had a positive attitude toward VIA screening.(Syaffa & Lidyawati, 2023)(Ginting, Astaria Br Yani et al., 2024)

Positive attitudes may arise from an understanding of the benefits of early detection and confidence in healthcare services. However, some respondents still expressed fear, embarrassment, and anxiety about receiving unfavorable results(Penggunaan Antibiotik, 2026). These concerns may act as barriers to screening participation and suggest the need for continuous health education and counseling by healthcare professionals. Family support was identified as another important factor influencing participation in VIA screening(Tahun et al., 2024). Women who received encouragement from their husbands and family members were more likely to undergo VIA examinations(Siagian et al., 2025). Family support can increase confidence, reduce anxiety, and motivate women to utilize preventive healthcare services. This finding supports previous research that highlights the significant role of social support in promoting health-seeking behavior among women.(Pengetahuan et al., 2026)

The results also showed that more than half of the respondents had never undergone a VIA examination. The most common reasons included lack of information, fear of diagnosis, embarrassment, and limited awareness of the importance of screening. These barriers indicate that despite the availability of VIA services, educational and promotional efforts remain insufficient in reaching all women of reproductive age.(Atfa et al., 2023)

Furthermore, a significant relationship was found between perception and participation in VIA screening. Women with positive perceptions were more likely to participate in cervical cancer screening programs. Therefore, improving knowledge, attitudes, and family support through effective health promotion strategies may help increase VIA screening coverage(Mastura & Simanullang, 2024). Strengthening community-based education programs and counseling services is essential to enhance women's participation in cervical cancer prevention and early detection efforts.(Pengetahuan et al., 2026)

Conclusion

Cervical cancer remains a major public health problem among women, particularly in developing countries, including Indonesia. Early detection through Visual Inspection with Acetic Acid (VIA) is an effective, simple, affordable, and accessible screening method that can significantly reduce the incidence and mortality of cervical cancer.(Lestari et al., 2023)

However, the participation of women of reproductive age in VIA screening programs remains relatively low. Women's perceptions play a crucial role in determining their willingness to undergo VIA examinations. Factors such as knowledge, attitudes, previous experiences, family support, and socio-cultural influences contribute significantly to shaping these perceptions. Positive perceptions are generally associated with higher participation rates in cervical cancer screening, while negative

perceptions, including fear, embarrassment, misinformation, and lack of support, may hinder women's involvement.(Hadi et al., 2022)

Therefore, increasing awareness and improving perceptions regarding VIA screening through continuous health education, community engagement, and family support are essential strategies to enhance participation in cervical cancer early detection programs(Ginting, Astaria Br Yani et al., 2024). The findings of this study are expected to provide valuable information for healthcare providers and policymakers in designing effective health promotion interventions aimed at improving women's participation in VIA screening and ultimately reducing the burden of cervical cancer.(Susanti & Susanti, 2023).

Based on these findings, strengthening educational programs and promoting positive perceptions toward VIA examinations among women of reproductive age should become a priority to achieve better reproductive health outcomes and support cervical cancer prevention efforts in the community.(Pengetahuan et al., 2026)

Suggestion

Health promotion efforts regarding cervical cancer prevention and VIA screening should be strengthened through continuous education and counseling programs targeting women of reproductive age. Healthcare providers are encouraged to improve the dissemination of accurate information about the benefits, procedures, and safety of VIA examinations to reduce fear, embarrassment, and misconceptions among women.(Syaffa & Lidyawati, 2023)

In addition, family and community support should be enhanced to encourage greater participation in cervical cancer screening programs. Future studies are recommended to involve larger sample sizes and explore additional factors influencing women's perceptions and participation in VIA screening,thereby providing more comprehensive evidence for developing effective cervical cancer prevention strategies.

References

- Atfa, I., Dwi Fara, Y., & Tri Utami, I. (2023). Faktor-Faktor Yang Mempengaruhi Pemeriksaan Iva. *Jurnal Maternitas Aisyah (JAMAN AISYAH)*, 4(1), 76–87. <https://doi.org/10.30604/jaman.v4i1.771>
- Babu, S., Rani, B., Abed, A., Narra, S. A., Jawed, H., Gillela, V. R., Rangoonwala, S., Hasan, A., Abdul, S., & Bodrova, E. (2026). *Forecasting global disparities in cervix and corpus uteri cancers : GLOBOCAN*. 5614. <https://doi.org/10.1200/JCO.2026.44.16>
- Bellatika, S. S., Afriani, L. D., Studi, P., Program, K., Kesehatan, F., Ngudi, U., Studi, P., Program, K., Kesehatan, F., Ngudi, U., Info, A., History, A., Deteksi, I., & Servik, K. (2024). Implementation of the Early Detection Program. *Indonesian Journal of Midwifery (IJM)*, 7(September), 189–199.
- Ginting, Astaria Br Yani, A., Manurung, H. R., & Sembiring, I. S. (2024). Hubungan dukungan suami dengan pemeriksaan inspeksi visual asam asetat dalam deteksi dini kanker leher rahim ibu Wanita usia subur di BPM Diana Kota Medan Tahun 2023 . *Haga Journal of Public Health (HJPH)*, 2(1), 20–25. <https://journal.victoryhaga.org/index.php/hjph/article/view/46/46>
- Hadi, F. S., Utami, S., & Lestari, W. (2022). Hubungan Persepsi Terhadap Perilaku Melakukan Pemeriksaan IVA Pada Wanita Usia Subur. *JUKEJ : Jurnal Kesehatan Jompa*, 1(2), 23–29. <https://doi.org/10.57218/jkj.vol1.iss2.309>
- Lestari, F., Suryani, L., & Priyatno, A. D. (2023). Analisis Faktor Yang Berhubungan Dengan Pemeriksaan Inspeksi Visual Asam Asetat (IVA) Analysis of Factors Associated with Visual Inspection of Acetic Acid. *Jurnal Kesehatan Saelmakers PERDANA*, 6(2), 432–441. <https://doi.org/10.32524/jksp.v6i2.1010>

- Mastura, A., & Simanullang, E. (2024). Hubungan Pengetahuan Ibu Tentang Deteksi Dini Kanker Serviks dengan Motivasi Pemeriksaan IVA di Puskesmas Peureulak Aceh Timur Tahun 2024. *Inovasi Kesehatan Global*, (4), 85–91.
- Pengetahuan, S. P., Keluarga, D. A. N. D., & Rarang, D. I. P. (2026). *DETERMINAN PARTISIPASI PEMERIKSAAN IVA PADA WANITA USIA*. 03(01), 16–24.
- Penggunaan Antibiotik, P. (2026). *Hubungan Karakteristik Dengan Tingkat*. 14(April), 39–48.
- Renata, D. S., & Damayanti, R. (2024). Hubungan Dukungan Suami Dengan Perilaku Inspeksi Visual Asetat (Iva) Pada Wanita Usia Subur: Literature Review. *Jurnal Riset Kesehatan Poltekkes Depkes Bandung*, 16(2), 485–494.
<https://doi.org/10.34011/juriskesbdg.v16i2.2249>
- Setiawati, R., Wariah, U., Nastiti, D., Nurlailasari, E., Putu, N., & Novita, I. (2026). *SERVIKS MENGGUNAKAN PEMERIKSAAN IVA*. 10, 3015–3019.
- Shinta Kristianti, Titisari, I., & Nurfiani. (2019). Hubungan Sikap Dengan Perilaku Pemeriksaan Inspeksi Visual Asam Asetat Pada Wanita Usia Subur Di Desa Kemiri Kabupaten Kediri. *Jurnal Kebidanan Kestra (JKK)*, 2(1), 80–87.
- Siagian, S. N., Damayanti, I., Simanjuntak, E. M., Gultom, S. M., Iswanika, S., Andriani, R. Y., Tinggi, S., Kesehatan, I., & Husada, M. (2025). Manajemen Asuhan Kebidanan Pada Ibu Hamil Dengan Ca serviks Di Ruangn Tha'If Rsu Haji Medan Sumatera Utara Tahun 2025. *Forisma*.
- Siregar, D. N., & Sartika, D. (2019). c. *BIOLINK (Jurnal Biologi Lingkungan Industri Kesehatan)*, 5(2), 106–113. <https://doi.org/10.31289/biolink.v5i2.1756>
- Susanti, N., & Susanti, D. (2023). Faktor-Faktor Yang Berhubungan Dengan Rendahnya Pemeriksaan Iva Terhadap Kanker Serviks Di Puskesmas Bayung Lencir. *Jurnal Kesehatan Medika Saintika*, 14(1), 134–145.
- Sutrisminah, E. (2024). Forecasting global disparities in cervix and corpus uteri. *Jurnal Pengabdian Kepada Masyarakat*, 8(3), 678–685.
- Syaffa, R. A., & Lidyawati, M. (2023). *Pengaruh Pengetahuan Dan Dukungan Suami Terhadap Pemeriksaan Iva (Inspeksi Visual Asam Asetat) Untuk*. (September), 543–551.
- Tahun, N., Simarmata, M., Siregar, E. P., Rezeki, S., Simanjuntak, L., Yesya, S. E., Azzahra, L., Jl, A., Air, P., Jl, I. V, Viii, P., Kel, N., Bekala, K., Johor, K. M., & Medan, K. (2024). *Jurnal Informasi Pengabdian Masyarakat Edukasi Deteksi Dini Kanker Servik Melalui IVA Tes Kelurahan Menteng Kecamatan Medan Denai Tahun 2024 Education on Early Detection of Cervical Cancer through IVA Test , Menteng Village , Medan Denai District , 2024 S*.