

*The 5<sup>th</sup> International Conference on Nursing and Public Health (ICONPH)*

**Knowledge of VIA Method Cervical Cancer Screening among WRA in Sedati Public Health Center**

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**ABSTRACT**

**Background:** Cervical cancer ranks as the second leading cause of death among women after breast cancer, with its high mortality rate primarily due to low awareness and inadequate early detection. Most patients seek medical care at advanced stages of the disease. **Object** This study aimed to assess the level of knowledge regarding cervical cancer screening using the Visual Inspection with Acetic Acid (VIA) method among women of reproductive age in Sedati Gede Village, working area of the Sedati Public Health Center, Sidoarjo Regency. **Method:** This research utilized a quantitative descriptive design with a population of 151 women of reproductive age (WRA) living in Neighborhood Association (NA) 08. A total of 100 WRA were selected through proportional cluster sampling. Data were collected using a questionnaire with the variables of age, education, occupation, and sources of information obtained by WRA and analyzed using frequency and percentage distribution. **Results:** The results showed that knowledge levels were generally good across all demographic groups. Based on age, all categories demonstrated had good, particularly those aged 20–40 years. In terms of education, most WRA with elementary school education had good, though a few had poor, while all with diploma or bachelor's degrees demonstrated good. Based on occupation, government employees, private employees, and entrepreneurs all of them had good knowledge. While unemployed, students most of them had good knowledge. **Conclusion:** In terms of information sources, all information from print media had good, and almost all who received information from health workers and electronic media also had good. It is recommended that women of reproductive age maintain and enhance their understanding of cervical cancer screening through active participation in community health activities.

**Keywords:** Knowledge, VIA, Cervical Cancer

**BACKGROUND**

Cervical cancer is the second leading cause of death for women worldwide, after breast cancer. The high mortality rate is due to women's low awareness of early detection. Most cervical cancer patients arrive at the hospital in an advanced stage. As a result, cervical cancer treatment is more difficult and results are less satisfactory, even leading to a faster death. One parameter that can be used to assess treatment success is the probability of survival. Cervical

cancer is a cancer that develops in the cervix and is caused by the Human Papillomavirus (HPV). The most common types of HPV infection are HPV types 16 and 18 (Hany et al., 2024).

Global Burden of Cancer Study data shows that cervical cancer cases in the world in 2020 were 604,000 cases (24.5%) and increased to 923,400 cases (26%) in 2021, while in Indonesia cases increased from 32,469 in 2019 to 38,469 in 2021. In East Java, positive VIA cases increased

from 3,342 (2019) to 3,425 (2021), in Sidoarjo Regency from 151 (2019) to 203 (2021), and at the Sedati Community Health Center in 2024, 2 positive cases were found out of 679 WRA examined. Research shows that most cervical cancer patients seek treatment at stage IIIB (56.9%) with a higher survival rate in the early stages. The high incidence of cervical cancer in Indonesia is influenced by low screening rates. In 2021, only 6.83% of women aged 30–49 had received a VIA test, and by 2023, this figure had reached 7.02%, out of the 70% target. While VIA testing is crucial for early detection and mortality reduction, low awareness among women remains a major issue, potentially increasing the incidence and reducing quality of life (Imanda et al., 2023; Zubaidah et al., 2020; Angesti et al., 2024).

According to the National Cancer Control Committee (KPKN), cervical cancer is typically caused by multiple partners, women engaging in sexual intercourse at a young age, smoking, having many children, low socioeconomic status, sexually transmitted infections, and immune system disorders (Nurbaiti., 2024). One of the Indonesian government's efforts to reduce the prevalence of cervical cancer is outlined in Minister of Health Decree No. 796/Menkes/SK/VII/2010 concerning technical guidelines for breast and cervical cancer control, which explains that cervical cancer prevention can be achieved through screening with the VIA method. The advantages of the VIA test include technical simplicity, low cost, can be performed at community health centers by general practitioners and midwives, and can provide immediate results that can be used for further treatment (Purwanti et al., 2020).

One effort that health workers can take is educating parents about the importance of VIA testing for women aged 15-49. This approach is expected to increase knowledge about cervical cancer and increase motivation and interest, especially for those who have already had

sexual intercourse, so that they can participate in early detection programs organized by the government and other health care facilities (Samaria., 2020). This study aims to assess the level of knowledge of women of reproductive age (WRA) regarding cervical cancer screening using the Visual Inspection with Acetic Acid (VIA) method in Sedati Gede Village, the working area of the Sedati Public Health Center, Sidoarjo Regency, by identifying their knowledge levels based on age, educational background, occupational status, and sources of information, in order to obtain a comprehensive overview of factors influencing awareness and understanding related to VIA screening.

## RESEARCH METHODS

This study uses a quantitative descriptive study that aims to describe the level of knowledge of women reproductive age (WRA) regarding cervical cancer screening using the Visual Inspection with Acetic Acid (VIA) method in Sedati Gede Village, the working area of the Sedati Health Center, Sidoarjo Regency. The population in this study were all WRA in NA 08, Sedati Gede Village, totaling 151 people, with a sample of 100 respondents obtained using a proportional cluster sampling technique. The research variables include knowledge about VIA cervical cancer screening based on age, education, occupation, and information sources. The data collection instrument was a questionnaire that had been tested for validity and reliability, consisting of 20 questions covering aspects of the definition, causes, risk factors, objectives, procedures, and advantages of the VIA examination.

Respondents were asked to answer by giving a check mark (✓) in the appropriate column. The results of the answers were then scored, with the assessment categories of good knowledge (76–100%), sufficient (56–75%), and poor ( $\leq 55\%$ ). Data analysis used univariate analysis methods with the presentation of

results in the form of frequency distributions and percentages. This research also pays attention to the principles of research ethics, namely informed consent (conscious consent of respondents), anonymity (without including the respondent's name), confidentiality (maintaining data confidentiality), respect for human dignity (respecting human dignity), and justice (upholding justice in the treatment of all respondents).

## RESULT AND DISCUSSION

### Characteristics of Women of Reproductive Age

Characteristics on women reproductive age (WRA in Sedati Gede Village, within the Sedati Community Health Center (Puskesmas) area of Sidoarjo Regency. Data collected included age, education, occupation, and sources of information about VIA cervical cancer screening.

**Table 1.**

Characteristics of Women of Reproductive Age in RW 08, Sedati Gede Village, Working Area of Sedati Public Health Center, Sidoarjo Regency, May 2025

No	Characteristics	Category	Frequency	Percentage
1	<b>Age</b>	15-19 years	6	6
		20-24 years	16	16
		25-29 years	14	14
		30-40 years	42	42
		41-49 years	22	22
<b>Total</b>			100	100
2	<b>Education</b>	Elementary School	5	5
		Junior High School	11	11
		Senior High School	61	61
		Diploma/Bachelor's Degree	23	23
<b>Total</b>			100	100
3	<b>Occupation</b>	Government Employees	6	6
		Private Employees	20	20
		Entrepreneurs	10	10
		Unemployed	47	47
		Students	17	17
<b>Total</b>			100	100
4	<b>Information Sources</b>	Health Workers	61	61
		Print Media	4	4
		Electronic Media	35	35
<b>Total</b>			100	100

Based on Table 1, the results of the study on 100 women of reproductive age (WRA) in RW 08, Sedati Gede Village, working area of Sedati Public Health Center, Sidoarjo Regency, showed that almost half (42%) of the respondents were aged 30–40 years. The educational background of the respondents indicated

that most of them (61%) had completed senior high school. In terms of occupation, nearly half (47%) of the respondents were unemployed. As for the source of information, the majority (60%) of the respondents obtained information from health workers.

### Knowledge of Cervical Cancer Screening Using the VIA Method Based on the Age

**Table 2.**

Knowledge of Cervical Cancer Screening Using the VIA Method Based on Age among Women of Reproductive Age in Sedati Gede Village, Working Area of Sedati Public Health Center, Sidoarjo Regency, May 2025

Age	Knowledge						Total	
	Good		Sufficient		Poor		F	%
	F	%	F	%	F	%		
15-19 years	3	50,00	3	50,00	0	0	6	100
20-24 years	16	100	0	0	0	0	16	100
25-29 years	12	85,71	2	14,29	0	0	14	100
30-40 years	39	92,86	3	7,14	0	0	42	100
41-49 years	19	86,36	2	9,09	1	4,55	22	100
<b>Total</b>	89	89	10	10	1	1	100	100

Based on Table 2, it is known that in the age group of 15–19 years, half of the respondents (50%) had good knowledge and half of them (50%) had sufficient knowledge. In the age group of 20–24 years, all respondents (100%) had good knowledge. In the age group of 25–29 years, almost all respondents (85.71%) had good knowledge and a small proportion (14.29%) had sufficient knowledge. In the age group of 30–40 years, almost all

respondents (92.86%) had good knowledge and a small proportion (7.14%) had sufficient knowledge. In the age group of 41–49 years, almost all respondents (86.36%) had good knowledge, a small proportion (9.09%) had sufficient knowledge, and a small proportion (4.55%) had poor knowledge regarding cervical cancer screening using the VIA method.

### Knowledge of Cervical Cancer Screening Using the VIA Method Based on Education

**Table 3.**

Knowledge of Cervical Cancer Screening Using the VIA Method Based on Education among Women of Reproductive Age in Sedati Gede Village, Working Area of Sedati Public Health Center, Sidoarjo Regency, May 2025

Education	Knowledge						Total	
	Good		Sufficient		Poor		F	%
	F	%	F	%	F	%		
Elementary School	4	80	0	0	1	20	5	100
Junior High School	8	72,70	3	27,30	0	0	11	100
Senior High School	55	90,16	6	9,84	0	0	61	100
Diploma/Bachelor's Degree	23	100	0	0	0	0	23	100
<b>Total</b>	89	89	10	10	1	1	100	100

Based on Table 3, the results of the study showed that among women of reproductive age with elementary school education, most (80%) had good knowledge and a small proportion (20%) had poor knowledge. Those with junior high school education mostly (72.7%) had good knowledge and almost half (27.3%) had sufficient knowledge. Respondents with senior high school education were almost all (90.16%) categorized as having

good knowledge, while a small proportion (9.84%) had sufficient knowledge. All respondents with diploma or bachelor's degrees (100%) had good knowledge regarding cervical cancer screening using the VIA method. The distribution of data in the table above indicates a tendency that the higher the level of education, the better the knowledge of women of reproductive age about cervical cancer screening using the VIA method.

### Knowledge of Cervical Cancer Screening Using the VIA Method Based on Occupation

**Table 4.**

Knowledge of Cervical Cancer Screening Using the VIA Method Based on Occupation among Women of Reproductive Age in Sedati Gede Village, Working Area of Sedati Public Health Center, Sidoarjo Regency, May 2025

Occupation	Knowledge						Total	
	Good		Sufficient		Poor		F	%
	F	%	F	%	F	%		
Government Employees	6	100	0	0	0	0	6	100
Private Employees	20	100	0	0	0	0	20	100
Entrepreneurs	10	100	0	0	0	0	10	100
Unemployed	39	82,98	7	14,89	1	2,13	47	100
Students	14	82,35	3	17,65	0	0	17	100
<b>Total</b>	89	89	10	10	1	1	100	100

Based on Table 4, the results of the study showed that all women of reproductive age who worked as government employees (100%) had good

knowledge. Those who worked as private employees (100%) also had good knowledge, and those who worked as entrepreneurs (100%) all had good

knowledge as well. Among women of reproductive age who were unemployed, almost all (82.98%) had good knowledge, a small proportion (14.89%) had sufficient knowledge, and a small proportion (2.13%) had poor knowledge. Meanwhile, respondents who were students were almost all (82.35%) categorized as having good knowledge, a small proportion (17.65%) had sufficient knowledge, and a

small proportion (2.13%) had poor knowledge. The distribution of data in the table above indicates a tendency that women of reproductive age who are employed tend to have better knowledge compared to those who are unemployed or students regarding cervical cancer screening using the VIA method.

### Knowledge of Cervical Cancer Screening Using the VIA Method Based on Sources of Information

Table 5.

Knowledge of Cervical Cancer Screening Using the VIA Method Based on Sources of Information among Women of Reproductive Age in Sedati Gede Village, Working Area of Sedati Public Health Center, Sidoarjo Regency, May 2025

Information Sources	Knowledge						Total	
	Good		Sufficient		Poor		F	%
	F	%	F	%	F	%		
Health Workers	56	93,4	3	4,97	1	1,63	60	100
Print Media	4	100	0	0	0	0	4	100
Electronic Media	29	80	7	20	0	0	36	100
<b>Total</b>	89	89	10	10	1	1	100	100

Based on Table 5, the results of the study showed that women of reproductive age who obtained information about cervical cancer screening using the VIA method from health workers were almost all (93.4%) categorized as having good knowledge, a small proportion (4.97%) had sufficient knowledge, and a small proportion (1.63%) had poor knowledge. Respondents who obtained information from print media were almost all (100%) categorized as having good knowledge. Meanwhile, respondents who obtained information from electronic media were almost all (80%) categorized as having good knowledge, and a small proportion (20%) had sufficient knowledge.

### Discussion

#### Knowledge of Cervical Cancer Screening Using the VIA Method Based on Age

Based on Table 2, the study results showed that among women of

reproductive age (WRA) in the 15–19 year age group, half (50%) had good knowledge and half (50%) had moderate knowledge. In contrast, within the 41–49 year age group, a small proportion (4.55%) demonstrated poor knowledge regarding cervical cancer screening using the Visual Inspection with Acetic Acid (VIA) method. Age influences an individual's level of knowledge, where late adolescents (15–19 years) are capable of abstract thinking, although their executive function has not yet fully matured. Meanwhile, individuals aged 20–40 years (late adolescence to middle adulthood) are at the peak of cognitive performance, characterized by optimal comprehension and complex thinking skills, which facilitate easier information absorption. However, in late adulthood (41–49 years), cognitive function begins to decline due to structural changes in the brain, reduced memory, and slower processing speed (Nababan et al., 2025). This finding is

consistent with (Purwanti et al., 2020), who reported that good knowledge was predominantly found among respondents aged 20–35 years, and is further supported by Notoatmodjo (2014) theory stating that individuals in productive age possess optimal cognitive ability, which gradually decreases with aging.

Generation Z adolescents (15–19 years) tend to obtain knowledge through digital media due to their familiarity with technology; however, the information they receive is often general and less accurate. On the other hand, adults acquire more reliable knowledge about VIA screening from healthcare professionals through counseling, health education, and medical services tailored to individual conditions. As age increases, the motivation to seek new information tends to decline due to conservative thinking patterns, busy lifestyles, limited technological access, and cognitive decline, causing older adults to develop knowledge more slowly than younger individuals. Therefore, although adolescents can access digital information more rapidly, healthcare professionals play an essential role in providing accurate education and correcting misinformation obtained from digital media.

### **Knowledge of Cervical Cancer Screening Using the VIA Method Based on Education**

Based on Table 3, the study results show that among women of reproductive age (WRA) with an elementary school education, a small proportion (20%) had poor knowledge. All respondents with diploma or bachelor's degrees (100%) demonstrated good knowledge. The data indicates a tendency that the higher the educational level of WRA, the better their knowledge.

Education is an important factor influencing knowledge. The higher an individual's level of education, the easier it is to receive, understand, and critically filter information, whereas a lower level of education tends to limit comprehension

and reduce one's breadth of knowledge (Notoatmodjo, 2018; Nursalam, 2020; Zahro et al., 2024). Previous studies also support this finding, showing that higher education levels are associated with better health knowledge and understanding, including in conducting VIA screening, which positively impacts overall health outcomes (Kamil, 2020; Rotua et al., 2024; Hanifah & Fauziah, 2020; Dewi et al., 2021).

Educational attainment plays a crucial role in determining WRA's knowledge regarding cervical cancer screening using the VIA method. WRA with high school, diploma, or bachelor's education tends to have better understanding due to easier access to information, greater comprehension of health education materials, and enhanced critical thinking skills. In contrast, those with lower educational backgrounds often experience difficulties in understanding information and rely more on their surrounding environment, resulting in a lower likelihood of engaging in early detection. Therefore, it is essential to strengthen health education by delivering information in simple language, using visually engaging media, and involving community health workers and local leaders. Regular socialization programs through healthcare facilities, integrated health posts (posyandu), and family welfare movement programs (FWM), supported by media such as videos, posters, and social media platforms, are needed to minimize knowledge disparities and enhance awareness of cervical cancer prevention and early detection among all WRA.

### **Knowledge of Cervical Cancer Screening Using the VIA Method Based on Occupation**

Based on Table 4, the study results show that all women of reproductive age (WRA) who worked as civil servants (100%), private employees (100%), and entrepreneurs (100%) had good

knowledge. In contrast, a small proportion (2.13%) of unemployed WRA demonstrated poor knowledge. The data indicates a tendency that employed WRA have better knowledge compared to those who are unemployed.

Occupation plays an important role in enhancing knowledge, as it provides individuals with opportunities to gain new experiences and information, both directly and indirectly, through their work environment (Notoatmodjo, 2018; Affandi et al., 2023). Previous studies have shown that employed WRA tend to possess better knowledge than those who are unemployed, as broader social interactions facilitate easier access to information (Dewi et al., 2021). This finding is consistent with (Mukarramah et al. 2020) who reported that nearly half of civil servants (42%) had good knowledge, whereas only a small proportion (17%) of unemployed WRA demonstrated good knowledge, indicating that occupation is an important factor influencing knowledge levels.

Employment affects the knowledge of WRA because working individuals are exposed to more social interactions that enable the exchange of information regarding cervical cancer screening using the Visual Inspection with Acetic Acid (VIA) method, resulting in higher knowledge levels. Conversely, unemployed WRA are expected to actively seek information through the internet, healthcare providers, or other media, despite having more limited exposure. The type of occupation also determines one's time availability, opportunities, and access to health services. Although unemployed WRA may have more time to participate in integrated health posts (posyandu) or VIA examinations, they still require active support from health cadres and community leaders to ensure that accurate information is delivered effectively and evenly across all groups.

### **Knowledge of Cervical Cancer Screening Using the VIA Method Based on Sources of Information**

Based on Table 5, the study results show that among women of reproductive age (WRA) who obtained information about cervical cancer screening using the Visual Inspection with Acetic Acid (VIA) method from healthcare professionals, almost all (93.4%) had good knowledge, a small proportion (4.97%) had moderate knowledge, and a small proportion (1.63%) had poor knowledge. All WRA who received information from printed media (100%) demonstrated good knowledge.

Research indicates that health promotion plays an important role in improving WRA's knowledge. The use of printed media has been proven effective, as 76% of respondents exposed to it demonstrated good knowledge, owing to the ease of understanding visually presented information with attractive designs (Randayani et al., 2021). Moreover, health education delivered by healthcare professionals such as midwives, doctors, and community health workers significantly influences WRA's willingness to undergo VIA screening. Realita et al., (2023) recommend that healthcare professionals not only instruct early detection but also provide comprehensive counseling regarding the risks, symptoms, causes, prevention, and treatment of cervical cancer to increase WRA's awareness and motivation to participate in screening programs.

Printed media such as newspapers, magazines, and brochures can serve as sources of information about VIA screening; However, their one-way and less interactive nature increases the risk of misinterpretation, particularly when medical terminology is used. On the other hand, direct education by healthcare professionals is more effective because it allows two-way communication, clarification, and real-life examples. Nevertheless, printed media can still

support education efforts when designed with simple language, appealing visuals, and distributed widely in healthcare facilities and public spaces. Therefore, synergy between printed media and healthcare professional interventions is necessary to enhance the effectiveness of health messages in improving WRA's knowledge and awareness regarding the importance of VIA screening.

## CONCLUSION

The study concluded that women of reproductive age generally had good knowledge of VIA cervical cancer screening across all age groups, with only a small portion of older respondents showing poor knowledge. Higher education levels were associated with better knowledge, as all respondents with diploma or bachelor's degrees demonstrated good understanding. Employed women tended to have better knowledge than unemployed women or students, although most still showed good knowledge. Regarding information sources, those who received information from printed media all had good knowledge, while nearly all who obtained information from healthcare providers and electronic media also demonstrated good knowledge.

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