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The Impact of JENG IVA CANTIKS Program on IVA Inspection Coverage at Kamal Primary Health Care

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Abstract

In 2022, the indicdence and mortality rates of cervical cancer were high in Indonesia, but coverage of national cervical cancer screening still only 12% done. This study aimed to examine the effect of the JENG IVA CANTIKS program on improving IVA screening coverage. A quasi-experimental design was employed. The dependent variable was IVA screening coverage, and the independent variable was the JENG IVA CANTIKS program. The study population consisted of all villages within the health center's catchment area, totaling 10 villages, with the sample selected through total sampling of all 10 villages. Data were analyzed using a Wilcoxon Signed Ranks Test. The results indicated a significance value of 0.005 (< 0.05) in the Wilcoxon Signed Ranks Test, demonstrating that the JENG IVA CANTIKS intervention had a significant effect on IVA screening coverage. However, the increase 28,82% in coverage had not yet reached the national standard 75% of targets. Thi is caused by several negative community behavior in responding to cervical cancer prognoses and prevention methods. So that Puskesmas needs to strengthen the existing program by considering community behavioral assessments and cross-sectoral collaboration as a basis for establishing effective strategies to educate, motivate, and promote the importance of IVA screening.

Keywords: *cervical cancer, visual inspection of acetic acid (IVA) test, public health*

INTRODUCTION

Cervical cancer is a malignancy caused by the human papillomavirus (HPV). Clinically, it initially presents as persistent cervical intraepithelial lesions, which may ultimately progress to cervical cancer. The prevalence of cervical cancer ranks as the fourth most common cancer among women. (Fowler et al., 2025). In Indonesia, cervical cancer ranks as the second most common cancer among women, with 70% of cases detected at an advanced stage, often resulting in ineffective treatment and a mortality rate of 50% (Sadikin, 2023). The Indonesian Society of Obstetrics and Gynecology reported that in 2018, approximately 21,000 of 36,000 cervical cancer cases resulted in death, and by 2022, there were 661,021 new cases with 348,189 deaths. These figures underscore the urgent need for government and healthcare workers to promote early prevention efforts (Al Hasan et al., 2025).

In the United States and other developed countries, most screening and early detection efforts involve HPV testing and Pap smears. HPV testing identifies exposure to low- and high-risk HPV types, while Pap smears detect abnormal cytology (Fowler et al., 2025). These approaches demonstrate that the majority of cases can be prevented or detected early, thereby reducing complications and mortality from cervical cancer (Fowler et al., 2025).

In 2020, Indonesia committed through the World Health Assembly (WHA) to adopt a holistic systems approach for cervical cancer prevention and control, integrating immunization programs, screening initiatives, and treatment services within adolescent health, HIV, sexual and reproductive health, and both communicable and non-communicable disease services. The government has also ensured that cervical cancer screening is covered under the National Health Insurance Scheme for married women aged 30–50 years using IVA or cytology every 3–5 years. Such services are also provided free of charge to women of lower socioeconomic status at community health centers or during mass screening programs (Sadikin, 2023).

Despite these efforts, national cervical cancer screening coverage in Indonesia remains at only 12% of the target (Robbers et al., 2021). In East Java Province, early detection coverage in 2023 was 4.71% of the national target of 70% (Andriani et al., 2024). A similar situation occurred at Puskesmas Kamal, Bangkalan Regency. In 2023, of an estimated 3,200 women aged 30–50 in the Puskesmas Kamal service area, only 450 women (14%) underwent IVA screening. Coverage further declined in 2024, with only 194 women (6%) screened. These figures remain far below the national target of 70%.

A government review in 2021 identified several determinants contributing to the low national screening coverage. First, knowledge-related factors, including limited awareness, low health literacy, and poor perception of cervical cancer risk. Second, access barriers, including costs, travel time, and difficulty reaching services. Third, supply constraints, including limited facility coverage and a shortage of skilled healthcare personnel.

To address service access barriers, this study aims to strengthen early detection of cervical cancer through the **"JENG IVA CANTIKS"** program, which brings IVA screening closer to the community via direct village visits. This intervention seeks to increase cervical cancer screening coverage through IVA examinations within the service area of Puskesmas Kamal, Bangkalan Regency.

METHODS

Type of Research

This study employed a quasi-experimental design with a Single-Group Interrupted Time-Series approach (Handayani et al., 2025). The design involved a single group, with the dependent variable being IVA screening coverage and the independent variable being the JENG IVA CANTIKS program. This design was chosen to assess the effect of the JENG IVA CANTIKS program on IVA screening coverage (Isnawan, 2020).

Time and Location

The intervention was implemented in the service area of Kamal Primary Health Center, Bangkalan Regency. Primary data were collected prior to the intervention in December 2024 and post- intervention in December 2025.

Sampling Technique, Sample Size, and Inclusion Criteria

The study population consisted of all villages (10 in total) within the Kamal Primary Health Center service area, encompassing married women of reproductive age (WRA). Total sampling was applied, including all 10 villages in the study.

Data Collection

Data were collected through observation. Primary data for the dependent variable, IVA screening coverage, were obtained by observing records before and after the implementation of the JENG IVA CANTIKS program. An observation table was used to record IVA screening coverage in December 2024 and December 2025 within the Kamal Primary Health Center service area.

Data Analysis

Data analysis was conducted in two stages. First, descriptive statistical analysis using SPSS was performed to describe the distribution and normality of the data (Singgih Santoso, 2008). Second, parametric statistical analysis was conducted to test the hypothesis using a simple paired t-test, calculated with IBM SPSS Statistics 20.

Ethical Consideration

Ethical approval for this study was obtained from the Health Research Ethics Committee of Noor Huda Mustofa University, with ethical clearance number 2786/KEPK/UNIV-NHM/EC/VII/2025.

FINDINGS AND DISCUSSION

General Data

Table 1. Distribution of Women of Reproductive Age (WRA) by Village in 2024

Village Name	N	%
KAMAL	903	15
BANYUAJUH	1796	29
GILI BARAT	299	5
GILI TIMUR	715	12
GILI ANYAR	462	8
TELANG	194	3
PENDABAH	370	6
TAJUNGAN	308	5
KEBUN	725	12
TANJUNG JATI	330	5
Total	**6102**	**100**

Source: Scondary Data, 2024

Table 1 illustrates the distribution of villages by the number of women of reproductive age (WUS) targeted for IVA screening in 2024. The highest numbers of WUS were observed in Banyuajuh, Kamal, Kebun, and Gili Timur villages, whereas Telang village had the lowest number of WUS.

Table 2. Distribution of Women of Reproductive Age (WUS) by Village in 2025

Village name	N	%
KAMAL	1826	29
BANYUAJUH	1063	17
GILI BARAT	337	5
GILI TIMUR	457	7
GILI ANYAR	711	11
TELANG	304	5
PENDABAH	260	4
TAJUNGAN	322	5
KEBUN	742	12
TANJUNG JATI	371	6
Total	**6393**	**100**

Source: Secondary Data, 2025

Table 2 presents the distribution of villages by the number of women of reproductive age (WUS) targeted for IVA screening in 2025. The highest numbers of WUS were observed in Kamal, Banyuajuh, Kebun, and Gili Anyar villages, while Pendabah village had the lowest number of WUS.

Specific Data

Table 3. IVA Screening Coverage Before the JENG IVA CANTIK Intervention at Kamal Community Health Center, Bangkalan Regency

Village name	N (WUS)	Capaian IVA 2024	
		N	%
KAMAL	903	28	3%
BANYUAJUH	1796	15	1%
GILI BARAT	299	11	4%
GILI TIMUR	715	9	1%
GILI ANYAR	462	9	2%
TELANG	194	11	6%
PENDABAH	370	8	2%
TAJUNGAN	308	7	2%
KEBUN	725	9	1%
TANJUNG JATI	330	7	2%
Total	**6102**	**114**	**2%**

Source: Secondary Data, 2025

Table 3 illustrates IVA screening coverage at Kamal Community Health Center, Bangkalan Regency, in 2024. Overall coverage remained low at 2%, with the highest coverage observed in Telang village (6%), Gili Barat village (4%), and Kamal village (3%), while the other seven villages reported coverage below 3%. The calculation was based on the percentage of women receiving basic SADANIS services and IVA tests, as specified in Ministry of Health Regulation No. 6 of 2024. Coverage was determined by dividing the number of women who received basic services (114) by the total target population of sexually active women of reproductive age (6,102) and multiplying by 100%, resulting in a coverage of only 2% (Indonesia, 2024). This figure remains far below the target coverage for basic SADANIS services and IVA testing.

Table 4. IVA Screening Coverage After the JENG IVA CANTIK Intervention at Kamal Community Health Center, Bangkalan Regency

Nama Desa	N (WUS)	Capaian IVA 2025	
		N	%
KAMAL	903	35	2%
BANYUAJUH	1796	39	4%
GILI BARAT	299	40	12%
GILI TIMUR	715	39	9%
GILI ANYAR	462	40	6%
TELANG	194	43	14%
PENDABAH	370	40	15%
TAJUNGAN	308	33	10%
KEBUN	725	42	6%
TANJUNG JATI	330	44	12%
Total	**6393**	**395**	**6%**

Source: Secondary Data, 2025

Table 4 illustrates IVA screening coverage at Kamal Community Health Center, Bangkalan Regency, in 2025 following the implementation of the JENG IVA CANTIKS program, which increased overall coverage to 6%. The villages with the highest coverage were Pendabah (15%), Telang (14%), Gili Barat and Tanjung Jati (12%), and

Tanjung (10%), while the remaining six villages reported coverage below 10%. The calculation was based on the percentage of women receiving basic SADANIS services and IVA tests, as outlined in Ministry of Health Regulation No. 6 of 2024. Coverage was determined by dividing the number of women who received basic services (395) by the total target population of sexually active women of reproductive age (6,393) and multiplying by 100%, resulting in a coverage of 6% (Indonesia, 2024).

This figure remains below the target for basic SADANIS services and IVA testing. According to Ministry of Health Regulation No. 29 of 2017, the program mandates that women should undergo screening at least once every five years. Therefore, the total target population can be divided over five years to determine the annual target. Dividing the annual target by 12 months establishes the monthly target. For Kamal Community Health Center, with a total target of 6,393 women, the annual target is 1,279 women, with a minimum of 107 women to be screened per month (Ministry of Health of the Republic of Indonesia, 2017). Based on these two policy references, it can be concluded that IVA screening coverage at Kamal Community Health Center has not yet met the national target set by the Indonesian government in the 2023–2030 National Action Plan (RAN) for Cervical Cancer Elimination, which aligns with the World Health Organization's priority target of achieving 75% IVA screening coverage among women aged 30–69 years (Sadikin, 2023).

Table 5. Statistical Test Results of IVA Screening Coverage at Kamal Community Health Center, Bangkalan Regency

Variabel	Statistik Desk			Tests of Normality	Wilcoxon Signed Ranks Test	95% Confidence Interval of the Difference	
	N	Mean	Std. Deviation	Sig.	Sig	Lower	Upper
IVA Coverage 2024	10	11,40	6,293	0,001	0,005	6,90	15,90
IVA Coverage 2025	10	39,50	3,375			37,09	41,91

Table 5 presents the statistical test results of IVA screening coverage at Kamal Community Health Center, Bangkalan Regency. The mean number of women of reproductive age (WRA) who underwent IVA screening was 11.40 in 2024 and increased to 39.50 in 2025, indicating that, on average, 11 women were screened in 2024 compared to 39 women in 2025. The normality test yielded a significance value of 0.001 (<0.05), indicating that the data were normally distributed. Additionally, the paired sample t-test showed a significance value of 0.000 (<0.05), demonstrating a statistically significant difference in IVA screening coverage before and after the implementation of the JENG IVA CANTIKS program. This indicates that the program had a measurable impact on IVA screening coverage at Kamal Community Health Center.

The JENG IVA CANTIKS program is an innovative initiative by Kamal Community Health Center aimed at increasing IVA screening coverage among married women of reproductive age as part of cervical cancer prevention and early detection efforts. The program adopts a proactive outreach approach, bringing IVA screening services

directly to villages, village halls, and other public locations on a monthly basis, conducted by trained midwives.

Statistical analysis indicates that the JENG IVA CANTIKS innovation is effective as a strategy to enhance early detection of cervical cancer through IVA screening across the ten villages under Kamal Primary Health Center. Quantitatively, the program achieved a significant increase in coverage compared to the previous period, although the results remain far below the national target. A gap of 28.82% suggests that the success of JENG IVA CANTIKS is still in its initial phase and has not yet reached optimal scale to cover the entire target population. Efforts by the health center, including the deployment of skilled midwives to conduct IVA examinations, have been implemented effectively. However, various community-related barriers persist, as identified by the researchers, though they were not examined substantively in this study. These include limited knowledge, low awareness of cervical cancer prevention, insufficient family and community support, and restricted access to information among women with minimal prior exposure to cervical cancer education.

Previous studies have highlighted the influence of knowledge, attitudes (Immawanti et al., 2024; Lubis, 2020), social support (from healthcare workers, cadres, peers), spousal support, accessibility, information availability (Muhammad et al., 2024), and parity (Dewi et al., 2024) on women's decisions to undergo IVA screening. These findings align with Shehandu B. Kar's Health Behavior Theory (1983), which posits that individual health behavior results from the interaction of behavioral intentions, social support, accessibility of information, personal autonomy, and the action situation (Nelwan, 2022). The theory underscores that health behavior cannot be changed by a single educational intervention or brief exposure to information, as multiple determinants influence the decision to participate in IVA screening.

Therefore, it is critical for Kamal Community Health Center to conduct comprehensive community behavioral analyses using a public health behavior approach. By leveraging the outreach model of JENG IVA CANTIKS, in-depth interviews with individuals, families, and cross-sector stakeholders can be conducted to collect actionable data. This information can then inform strategies for education, motivation, and promotion of the importance of IVA screening, ultimately fostering changes in knowledge, attitudes, and behavior so that women voluntarily participate in available screening services.

Conclusions

The findings of this study indicate that the JENG IVA CANTIKS program statistically increased IVA screening coverage at Kamal Community Health Center, Bangkalan Regency. However, coverage has not yet reached the national target of 75%. Continued implementation of the program is recommended, with strategies informed by community behavior analysis to effectively educate, motivate, and promote the importance of IVA screening, thereby fostering a shift in mindset and achieving national screening targets.

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