Disparities in Women's Knowledge of Cervical Cancer Early Detection in Sungai Rangas Village

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ABSTRACT
In Indonesia, the burden of cervical cancer continues to rise, with low screening coverage contributing to delayed diagnosis and preventable deaths. Early detection through screening methods such as Visual Inspection with Acetic Acid (VIA) and Pap smear is essential; however, national coverage remains far below the recommended target. Knowledge deficits among women have been identified as a key barrier to participation in early detection programs. This study aimed to identify the level of knowledge among women regarding early detection of cervical cancer in Sungai Rangas Village, Martapura Barat District. A descriptive quantitative design was employed, and the study was conducted in June 2024. The population consisted of 153 women of reproductive age who had engaged in sexual intercourse and had never undergone cervical cancer screening. Using the Slovin formula and consecutive sampling, 115 respondents were recruited through a door-to-door approach across three neighborhood units. Data were collected using a validated and reliable questionnaire comprising 14 multiple-choice items on cervical cancer and early detection. Validity coefficients ranged from r = 0.353 to r = 0.9707, exceeding the critical value of r = 0.3246, and the reliability coefficient was 0.986. Data were analyzed descriptively to summarize respondent characteristics and knowledge levels, with results presented in tabular form. The findings showed that most respondents were aged 20–30 years, had completed elementary education, were not employed, and primarily received information from healthcare workers. Knowledge levels indicated that 57.4% of women demonstrated good knowledge regarding early detection of cervical cancer, while 42.6% exhibited poor knowledge. These results highlight persistent gaps in awareness that may contribute to low screening uptake in the community. In conclusion, although more than half of the respondents demonstrated adequate knowledge, a substantial proportion still lacked essential understanding of cervical cancer and its early detection methods.
Keywords: cervical cancer, early detection, knowledge, women of reproductive age, screening, Indonesia

INTRODUCTION
Cervical cancer is a malignant growth arising in the uterine cervix, originating primarily from the epithelial layer or the outer surface lining of the cervix. The disease is etiologically linked to Human Papillomavirus (HPV) infection, with evidence indicating that approximately 99.7% of cervical cancer cases are associated with HPV exposure [1]. Globally, cervical cancer is recognized as the second most common malignancy affecting women and contributes to an estimated 7.2% of all female cancer-related deaths [2].

According to the Global Burden of Cancer Study (Globocan) published by the World Health Organization in 2020, Indonesia ranks second among countries with the highest number of cervical cancer cases in the region. The global incidence of cervical cancer is projected to increase annually, reaching an estimated 720,415 new cases and 394,905 deaths by the year 2025 [3]. In Indonesia, the overall cancer incidence rate is 136.2 per 100,000 population, placing the country eighth in Southeast Asia and twenty-third in Asia. Among women, the incidence rate is 23.4 per 100,000, with an average mortality rate of 13.9 per 100,000 [4].

Cervical cancer is a preventable disease, and prevention efforts rely heavily on early detection. Early detection involves screening procedures designed to identify precancerous cellular changes (dysplasia) or early-stage malignancy before clinical symptoms emerge. Screening methods include Visual Inspection with Acetic Acid (VIA), Pap smear testing, and biopsy when indicated [4]. Despite the availability of these methods, national coverage remains critically low. The Indonesian Health Profile reports that early detection coverage through Pap smear and VIA among women of reproductive age is only 5%, far below the government's target of 80% of the female population [5].

In Banjar Regency, early detection coverage remains suboptimal. Data from Puskesmas Martapura 1 in 2022 indicate that only 4.22% of the targeted 14,707 women underwent screening. Puskesmas Martapura 2 reported 3.79% coverage among 5,412 targeted women, while Puskesmas Martapura Barat recorded only 3.04% coverage among 3,032 targeted women [4]. In 2023, from January to September, Puskesmas Martapura Barat reported that Sungai Rangas Village had the lowest screening coverage among its thirteen villages, with 0% of eligible women undergoing early detection.

Multiple factors contribute to women's reluctance or failure to participate in cervical cancer screening. These include limited knowledge, negative attitudes, and low self-efficacy related to screening behaviors [6]. One of the most significant determinants of delayed screening is inadequate knowledge about cervical cancer and its early detection procedures [7]. Knowledge levels are shaped by various influences, including healthcare workers, peers, family members, and exposure to information through social media platforms [8]. Data from five Indonesian provinces—South Kalimantan, South Sulawesi, Bali, North Sumatra, and East Java—show that 41.6% of women possess poor knowledge regarding cervical cancer [9].

Several studies reinforce this pattern. Research conducted in Palembang reported that women's knowledge about cervical cancer remained low, with 0% demonstrating good knowledge, 66.67% showing low knowledge, and 33.33% demonstrating moderate knowledge [10]. A study in Padang found that 56.4% of women had poor knowledge regarding cervical cancer and early detection [11]. Similarly, research in Makassar revealed that 56.1% of women exhibited inadequate knowledge about cervical cancer and screening procedures [12]. Knowledge represents a foundational cognitive component that shapes individual behavior. It reflects the amount of information a person acquires, and higher levels of knowledge are generally associated with more informed and proactive health behaviors [13]. Individuals who understand cervical cancer and its risks are more likely to engage in early detection practices, thereby reducing their likelihood of developing advanced disease [14].

Considering these circumstances, the present study aims to identify the level of knowledge among women regarding early detection of cervical cancer in Sungai Rangas Village, Martapura Barat District.

METHODS
The study was conducted in Sungai Rangas Village, located in Martapura Barat District, during June 2024. This setting was selected because the village demonstrated the lowest early detection coverage for cervical cancer screening in the district, making it a relevant context for examining

women's knowledge regarding early detection practices. The research employed a descriptive quantitative [15-17] design aimed at providing a systematic overview of the level of knowledge among women of reproductive age concerning early detection of cervical cancer.

The study population consisted of 153 women of reproductive age who met the eligibility criteria of having engaged in sexual intercourse and never having undergone cervical cancer screening. The sample size was determined using the Slovin formula [15], resulting in a required sample of 115 respondents. Sampling was carried out using consecutive sampling, in which all eligible individuals encountered during the data collection period were recruited until the required sample size was achieved. Data collection was conducted through a door-to-door approach across three neighbourhood units (RT 1, RT 2, and RT 3) within Sungai Rangas Village. During each visit, the researcher introduced the study, explained the purpose and procedures, and invited eligible women to participate. Respondents who agreed to take part were asked to sign an informed consent form. The researcher then provided the questionnaire, remained present during completion to ensure clarity and accuracy, and checked each completed form for completeness before proceeding to data processing [18].

The study employed a single variable, namely women's knowledge regarding early detection of cervical cancer. Knowledge was measured using a structured questionnaire consisting of 14 multiple-choice items covering essential aspects of cervical cancer and early detection methods. The instrument had undergone prior validity testing, yielding item validity coefficients ranging from r = 0.353 to r = 0.9707, exceeding the critical value of r = 0.3246, and demonstrating a high reliability coefficient of 0.986. These psychometric properties indicated that the questionnaire was both valid and reliable for assessing the intended construct.

Data analysis was performed using descriptive statistics [19]. Respondent characteristics, including age, educational attainment, occupation, and sources of information, were summarized to provide an overview of the study population. The level of knowledge was then analyzed by calculating frequency distributions and percentages for each response category [20-24]. The results were presented in tabular form to facilitate clear interpretation of respondent characteristics and knowledge levels.

RESULTS

The demographic characteristics of the 115 women of reproductive age are presented in Table 1. The data show that the average age of participants fell within the range of 20–30 years, representing the dominant reproductive age group in the study area. Educational attainment was largely concentrated at the elementary school level, with 58.3% of respondents having completed primary education. Employment status indicated that most respondents were not engaged in formal work (63.5%), reflecting the socioeconomic profile of women in Sungai Rangas Village. Healthcare workers were identified as the most common source of information regarding cervical cancer and early detection (62.6%), suggesting that formal health services remain the primary channel for disseminating health-related knowledge in the community.

Table 2 presents the distribution of women's knowledge regarding early detection of cervical cancer. The findings indicate that more than half of the respondents demonstrated a good level of knowledge (57.4%), suggesting that a substantial proportion of women possessed adequate understanding of cervical cancer, its risk factors, and available screening methods. However, a considerable percentage of respondents (42.6%) still exhibited poor knowledge, reflecting persistent gaps in awareness that may hinder participation in early detection programs. These results highlight the need for strengthened health education strategies, particularly in communities where screening coverage remains low and access to reliable information is limited.

Table 1. Distribution of demographic characteristics of women of reproductive age

Age (year)	Minimum-maximum	Mean
15-49	19-49	20-30
Demographic characterictics	Frequency	Percentage
Education		
Elementary school	67	58.3
Junior high school	21	18.3
High school	22	19.1
Higher education	3	2.6
No formal education	2	1.7
Employment status		
Employed	42	36.5
Unemployed	73	63.5
Source of information		
Healthcare workers	72	62.6
Family	6	5.2
Social media	22	19.1
Others	15	13.0

Table 2. Distribution of women's knowledge regarding early detection of cervical cancer

Knowledge	Frequency	Percentage
Good	66	57.4
Poor	49	42.6

DISCUSSION

The respondents in this study were 115 women residing in Sungai Rangas Village, Martapura Barat District, distributed across three neighborhood units (RT 1, RT 2, and RT 3). The characteristics assessed included age, educational attainment, employment status, and sources of health information. The descriptive analysis showed that the mean age of respondents was 34.33 years. According to the World Health Organization [3], women aged 35–50 years are strongly recommended to undergo cervical cancer screening at least once in their lifetime, as HPV infection is primarily transmitted through sexual contact. Cervical cancer is preventable when precancerous lesions are detected early, and such lesions can only be identified through appropriate screening procedures [25].

The findings further revealed that the majority of respondents had completed elementary school, representing 59.3% of the sample. Education plays a crucial role in shaping an individual's participation in health-related activities. Higher educational attainment is generally associated with greater intellectual capacity, improved comprehension, and stronger critical-thinking skills, all of which influence the ability to process information and make informed decisions. Consequently, individuals with higher levels of education tend to adopt healthier behaviors and more readily understand health messages, leading to positive behavioral change [26].

Employment status also demonstrated a notable pattern, with 58.3% of respondents reporting that they were not employed. Although employment is often associated with socioeconomic stability and broader access to information, being unemployed does not necessarily indicate poor knowledge. Women may still obtain information from various sources, including family members, social media, and healthcare workers [16]. This finding aligns with previous research [27], which reported no significant association between employment status and knowledge levels, as comprehension and information processing are influenced by multiple factors beyond occupational background [28].

The analysis also showed that healthcare workers were the most frequently reported source of information, accounting for 62.6% of respondents. Sources of information encompass all channels through which knowledge is transmitted, including mass media, social media, printed

materials, and health education activities such as counseling and community outreach programs [26]. Supporting evidence from another study [29] indicates that access to reliable information plays a critical role in facilitating women's participation in cervical cancer screening. Information obtained directly or indirectly from credible sources contributes significantly to awareness and early detection practices.

The descriptive analysis revealed that 57.4% of respondents demonstrated good knowledge regarding early detection of cervical cancer. This finding is consistent with previous research [30], which reported that most women possessed adequate knowledge. However, adequate knowledge does not automatically translate into screening behavior. Knowledge is only one of several determinants of health behavior; other influential factors include personal beliefs, cultural values, perceived vulnerability, availability of health facilities, and the attitudes of healthcare providers [31].

Despite the proportion of women with good knowledge, the present study also found that 42.6% of respondents had poor knowledge. This is a concerning finding, as ideally all women of reproductive age should possess adequate knowledge to support timely screening and prevention efforts. The presence of such knowledge gaps indicates the need for targeted interventions to improve understanding of cervical cancer and its early detection methods [32].

Further examination revealed that even among respondents who received information from healthcare workers, a substantial proportion still demonstrated poor knowledge. Similarly, some women with higher educational backgrounds also exhibited inadequate knowledge, suggesting that education alone does not guarantee adequate understanding. Additionally, employed women were found to have lower knowledge levels, possibly due to limited time to seek health information or competing responsibilities that reduce opportunities for learning [33].

Based on the researcher's interpretation, many women in Sungai Rangas Village perceive cervical cancer screening as unnecessary in the absence of symptoms. Although healthcare workers serve as the primary source of information, screening behavior remains low due to fear, embarrassment, and misconceptions about the procedure. Knowledge alone does not ensure healthy behavior; even women with good knowledge may avoid screening due to fear of diagnosis, anxiety about the procedure, or social influences.

This situation reflects a significant gap between knowledge and actual screening practices. Factors contributing to low knowledge and low screening uptake include limited access to comprehensive information, underutilization of educational opportunities, fear or shame associated with screening procedures, misconceptions that screening is only needed when symptoms appear, and a lack of supportive social environments [34]. Addressing these barriers requires a more comprehensive approach, including enhanced health education by healthcare workers, involvement of community leaders and health volunteers in awareness campaigns, strategic use of social and mass media to disseminate accessible information, and provision of women-friendly, affordable, and private screening services [35]. Through these strategies, it is expected that women's knowledge will improve and be accompanied by positive behavioral changes in cervical cancer early detection.

CONCLUSION

The study found that although most women in Sungai Rangas Village had good knowledge of cervical cancer early detection (57.4%), a considerable proportion (42.6%) still demonstrated inadequate understanding. Limited knowledge occurred across all educational levels and among both employed and unemployed women. Contributing factors included misconceptions that screening is only needed when symptoms appear, fear and embarrassment toward the procedure, limited time to seek information, and suboptimal use of information provided by healthcare workers. These findings highlight a persistent gap between knowledge and actual screening behavior. Strengthening women's knowledge and improving screening uptake require continuous health education, community-based outreach, and effective use of mass and social media tailored to local sociocultural contexts.

Ethical consideration, competing interest and source of funding

-Ethical considerations were upheld throughout the research process. Participation was entirely voluntary, and respondents were informed of their right to withdraw at any time without consequence. Confidentiality and anonymity were strictly maintained, with all data handled solely for research purposes. The study adhered to ethical principles of respect for persons, beneficence, and justice, ensuring that respondents were treated with dignity and that no harm resulted from their involvement.
-There is no conflict of interest related to this publication.
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