THE RELATIONSHIP BETWEEN CERVICAL CANCER SCREENING FREQUENCY AND EARLY DETECTION OUTCOMES AMONG WOMEN OF CHILDBEARING AGE

Lenny Irmawaty Sirait[1], Elis Evi Saputri[2], Syntia Amilia Lorensyah[3]
[1-3]Bachelor's Degree Program in Midwifery, STIKes Medistra Indonesia
Email: lennyirmawaty@gmail.com

ABSTRACT

Introduction: Cervical cancer is one of the leading causes of death among women of childbearing age. Approximately 500,000 women worldwide are diagnosed with cervical cancer, and over 250,000 women die from the disease each year. The pathophysiology involves a precursor condition known as cervical intraepithelial neoplasia (CIN) before the onset of cervical cancer. The number of cervical cancer cases is expected to increase annually, with estimates reaching 12 million cases by 2030. Screening for precancerous lesions can detect cervical cancer early. Objective: To determine the relationship between cervical cancer screening frequency and early detection outcomes among women of childbearing age at the Public Health Center in Makassar District in 2019. Method: This study utilized a descriptive correlational method with a quantitative approach, employing quota sampling technique. The sample size consisted of 61 WCA aged 15-45 years. Primary data were used in this research. Results: There was a significant relationship between cervical cancer screening frequency and early detection outcomes among women of childbearing age (WCA) at the Public Health Center in Makassar District in 2019 (P-value = 0.001). Conclusion: Cervical cancer screening frequency is associated with early detection outcomes of cervical cancer.

Keywords: Cervical Cancer, Screening, Women of Childbearing Age, Detection.

INTRODUCTION

Cervical cancer is one of the leading causes of death among women of reproductive age. Approximately 500,000 women worldwide are diagnosed with cervical cancer each year, and more than 250,000 women die from this disease annually. Cervical cancer frequently occurs in Women of Reproductive Age (WRA), typically aged between 15 and 45 years, a period when women are sexually active and considered to be in their reproductive prime. Sexually active WRA are at a higher risk of developing cervical cancer (Afwina, 2017).

The pathophysiology begins with a condition known as cervical intraepithelial neoplasia (CIN) or precancerous lesions before cervical cancer develops. CIN represents the initial stage of cervical changes leading to uterine cervical carcinoma. The pathogenesis of CIN can be seen as a spectrum of disease starting from mild dysplasia (CIN 1), moderate dysplasia (CIN 2), severe dysplasia and carcinoma in situ (CIN 3), which can progress to invasive carcinoma. Before cervical cancer develops, it is preceded by a condition known as precancerous lesions or cervical intraepithelial neoplasia (CIN). NIS represents an early stage of cervical changes leading to uterine cervical carcinoma. The pathogenesis of NIS can be considered a spectrum of disease starting from mild dysplasia (CIN 1), moderate dysplasia (CIN 2), and severe dysplasia and carcinoma in situ (CIN 3), which can then

progress to invasive carcinoma (Nindrea, Ricvan, 2017)

Precancerous lesions, commonly known as Cervical Intraepithelial Neoplasia (CIN), are characterized by dysplastic changes in the cervical epithelium. This condition marks the early stages of progression towards cervical carcinoma or cervical cancer. Cervical cancer is a malignant tumor that develops in the cervix, which is attached to the top of the vagina. According to data from the Institut Catala Oncologia (ICO) Human Papilloma Virus Information Centre in 2017, there were 572,625 cases of cervical cancer worldwide, with 265,672 affected individuals. (Enggoa et al., 2017).

Pre-cancerous lesions or Cervical Intraepithelial Neoplasia (CIN) encompass mild dysplasia, moderate dysplasia, and severe dysplasia. In women with a strong immune system, the progression from cervical pre-cancerous lesions to cervical cancer may occur over a period of 15-20 years, whereas in women with a weakened immune system, cervical cancer can develop within 5-10 years. Pre-cancerous lesions of the cervix and cervical cancer share similar risk factors. Factors that can contribute to the development of cervical pre-cancerous lesions include early marriage, multiple sexual partners, HPV infection, use of hormonal contraceptives, hygiene practices related to reproductive organs, history of genital infections, multiparity, inadequate consumption of fruits and vegetables, and exposure to cigarette smoke (Chasanah et al., 2017).

In the world, 3-7 million women have high-grade pre-cancerous lesions (High Grade Dysplasia), and it is estimated that over 1 million women progress to develop cervical cancer. The American Cancer Society (ACS) states that invasive cervical cancer typically occurs in women aged between 35-50 years. Invasive cervical cancer is usually preceded by a history of varying degrees of pre-invasive cell changes, ranging from mild dysplasia to carcinoma in situ, which may have occurred 10 to 20 years prior. Without treatment, a small percentage of women with mild dysplasia will progress to invasive cancer (Mannopo, 2016).

The number of cancer cases is estimated to continue increasing annually, reaching approximately 12 million cases by 2030. Each year, there are 6.25 million new cancer cases reported globally. Specifically for cervical cancer, it is estimated to occur in more than 30 out of 100,000 people worldwide. Ranked as the fourth most common cancer in women and seventh overall, cervical cancer accounts for around 528,000 new cases annually, with 266,000 deaths attributed to the disease. This represents approximately 7.5% of all cancer-related deaths worldwide. In less developed regions, cervical cancer is particularly prevalent, accounting for nearly nine out of ten (87%) cervical cancer deaths globally. Mortality rates vary significantly, with rates less than 2 per 100,000 in Western Asia, Western Europe, and Australia/New Zealand, while exceeding 20 per 100,000 in Melanesia (20.6), Central Africa (22.2), and Eastern Africa (27.6). In Indonesia alone, more than 15,000 cases of cervical cancer are detected annually, resulting in approximately 8,000 deaths. Indonesia has the highest incidence of cervical cancer globally. Cervical cancer often progresses without symptoms, making early detection challenging, which frequently leads to diagnosis at advanced stages (Lubis, 2018).

In the United States, among women undergoing cervical cancer screening, the prevalence of Cervical Intraepithelial Neoplasia (CIN) is approximately 4% for CIN 1 and 5% for CIN 2 and 3 combined. High-grade pre-cancerous lesions are typically diagnosed in women aged 25 to 35 years, while invasive cervical cancer is more commonly diagnosed after the age of 40. This typically occurs 8 to 13 years after the diagnosis of high-grade lesions. In developing countries like Nigeria, the average age for Cervical Intraepithelial Neoplasia (CIN) occurrence is 36.7 years. Specifically, CIN 1 accounts for 3.6%, CIN 2 accounts for 0.8%, and CIN 3 accounts for only 0.4% of cases (Nindrea, Ricvan, 2017).

Pre-cancerous lesions can be detected early through cervical cancer screening methods such as Visual Inspection with Acetic Acid (VIA) using 5% acetic acid. This method is implemented in health centers where healthcare professionals are trained and certified. Early detection through VIA at the

early stage of cervical cancer may reduce the incidence of cervical cancer. In addition to VIA, early detection of cervical cancer can also be achieved through the Pap smear method. Screening using VIA and Pap smear is beneficial for identifying cervical lesions serviks (Chasanah et al., 2017).

Cervical cancer screening aims to detect pre-cancerous lesions or cervical cancer in women at risk, typically before symptoms manifest. Screening is recommended for women aged 30-49 years, as incidents often do not present any symptoms initially (Padauleng et al., 2018). Research results can demonstrate that early detection of pre-cancerous lesions can reduce the incidence of cervical cancer and decrease mortality rates associated with the disease. Early detection methods for pre-cancerous lesions include VIA (Visual Inspection with Acetic Acid) and Pap smear (Papanicolaou test) (Mulyati et al., 2015)

Cervical cancer screening can be conducted once a woman becomes sexually active, whether married or unmarried. The first sexual intercourse before the age of 20 has a sensitivity of 36.84% and a relatively high specificity of 73.17%. Engaging in sexual activity before the age of 16 increases the risk of cervical cancer by tenfold, according to epidemiological studies. Prevalence characteristics of cervical pre-cancerous lesions show the highest occurrence among women aged 40-49 years. This aligns with research by Agung, Gusti I (2017), indicating that the peak incidence of cervical cancer occurs between the ages of 40 and 55 years (Kebidanan et al., 2017).

Based on data from the Indonesian Health Profile in 2016, Indonesia's 34 provinces implemented early detection programs for cervical and breast cancer targeting women aged 30-50 years. In 2014, the government set a target of 37,415,483 screenings for cervical and breast cancer. The baseline screenings in 2014 totaled 904,099, with 364,234 screenings conducted in 2015 and 657,610 in 2016. From 2014 to 2016, a total of 1,925,943 screenings were performed, resulting in 74,453 positive cases identified through VIA (Visual Inspection with Acetic Acid) tests, with 1,739 suspected cervical cancer cases.The highest number of positive VIA test results was reported in Central Java with 20,548 cases, followed by East Java with 17,824 cases, and Bali with 12,653 cases. These figures highlight the distribution of cervical cancer screening and detection efforts across Indonesia's provinces (Kemenkes RI, 2018).

Cervical cancer incidence can indeed be reduced through primary prevention efforts such as increasing educational campaigns to promote healthy lifestyles, avoiding risk factors associated with cervical cancer, and administering HPV vaccination. These efforts should be complemented by early detection methods such as Visual Inspection with Acetic Acid (IVA Test) or Pap smear. Currently, cervical cancer screening coverage in Indonesia through IVA Test and Pap smear remains very low (around 5%). Effective screening coverage, however, has the potential to reduce cervical cancer morbidity and mortality rates by as much as 85% %. The National Program for Prevention and Detection of Cervical Cancer and Breast Cancer in 2015 was one of the government's initiatives aimed at screening for cervical cancer. Under this program, cervical cancer screening was conducted annually for sexually active women aged 35-45 years. Visual Inspection with Acetic Acid (IVA) and Pap smear were the screening methods employed by the government to detect cervical cancer (Juanda & Kesuma, 2015), (Afwina, 2017).

METHOD

The type of research used in this study is descriptive correlational, aiming to explore the relationship between the frequency of cervical cancer screening and the early detection outcomes of cervical cancer, using a cross-sectional method. The population in this study consists of Women of Childbearing Age (WCA) aged 15-45 years who underwent cervical cancer screening at the Public Health Center in Makassar District from 2016 to 2019. Specifically, in 2016, there were 1005 WCA screened; in 2017, there were 1326 WCA screened; and in 2018, there were 5138 WCA screened.

Week	Wednesday, May 29, 2019 (12 respondents)
Week 2	Wednesday, June 12, 2019 (11 respondents)
Week 3	Wednesday, June 19, 2019 (15 respondents)
Week 4	Wednesday, June 26, 2019 (13 respondents)
Week 5	Wednesday, July 10, 2019 (12 respondents)
Total	61 respondents

The sampling technique used in this study is Non-Probability Sampling, specifically Quota Sampling. Before conducting the research, the researcher conducted a preliminary study and found that the number of Women of Childbearing Age (WUS) undergoing cervical cancer screening each week ranged from 12 to 20 respondents. Therefore, the researcher set a quota of 60 respondents for data collection over 5 weeks (12 respondents per week x 5 weeks). This method is precisely termed Quota Sampling because the researcher predetermined the quota before the study began. By combining these two sources of data, the study aims to provide comprehensive insights into the relationship between cervical cancer screening frequency and early detection outcomes among women of childbearing age in Makassar District.over the past 3 years (2016-2019).

The research sampling involved collecting primary data through questionnaires developed by the researcher. The responses obtained were then cross-checked with secondary data from medical records In this study, two sources of data are utilized:

1. Primary Data: Utilizing a questionnaire developed by the researcher. The questionnaire includes questions covering respondent demographics, screening history, marital history, parity (number of pregnancies), contraceptive history, and personal hygiene practices.

2. Secondary Data: Secondary data consists of medical records obtained from the Public Health Center (Puskesmas) in Makassar District over the past three years (2016-2019). These records will be cross-checked against the responses obtained from the questionnaire to ensure accuracy and reliability of the information.

Cervical cancer screening and the early detection outcomes of cervical cancer were analyzed using the Chi-square statistical test in this research. The researcher chose this test because both the dependent and independent variables are categorical. The Chi-square test is suitable for determining the relationship between these variables by examining proportions. It helps to assess whether there is an association between the two variables based on categorical data.

RESULT AND DISCUSSION

Table 1. Frequency Distribution of Cervical Cancer Screening among Women of Childbearing Age at the Community Health Center of Makasar District.

Screening Frequency	f	%
First Time	31	50.8
$\geq 2x$	18	29.5
$\geq 3x$	12	19.7
Total	61	100

Based on Table 1, it is known that the highest screening frequency is the first time, with 31 respondents (50.8%). Screening frequency of 2 times or more includes 18 respondents (29.5%), and screening frequency of 3 times or more includes 12 respondents (19.7%).

Table 2. Distribution of Frequency of Initial Cervical Cancer Detection Results among Women of Childbearing Age at the Community Health Center of Makasar District

Initial Screening Results	f	%
Positive	22	36,1
Negative	39	63,9
Total	61	100

Based on Table 2, it is known that the highest initial screening result is negative, with 39 respondents (63.9%), and positive with 22 respondents (36.1%).

Table 3. The Relationship Between Cervical Cancer Screening Frequency and Initial Detection Results of Cervical Cancer among Women of Childbearing Age at the Community Health Center of Makasar District

Screening Frequency	Hasil Awal Skrining				
	Positive		Negative		
	f	%	f	%	P Value
First Time	0	0	31	100	
≥2x	11	61,1	7	38,9	0,001
≥3x	11	91,7	1	8,3	
	22	36,1	39	63,9	

From Table 3, it can be observed that among Women of Childbearing Age (WUS) undergoing cervical cancer screening: First Time Frequency Negative Result: 31 respondents (100%), Positive Result: 0 respondents (0%). Frequency ≥2x, Positive Result: 11 respondents (61.1%); Negative Result: 7 respondents (38.9%). Frequency ≥3x:Positive Result: 11 respondents (91.7%), Negative Result: 1 respondent (8.3%). Overall, the highest number of respondents undergoing screening showed: Negative Result: 39 respondents (63.9%), Positive Result: 22 respondents (36.1%). Chi-square analysis based on statistical test results using the chi-square test yielded a p-value of 0.001, indicating a significant relationship between the frequency of cervical cancer screening and the initial detection results of cervical cancer.

Precancerous stages of cervical cancer can be identified and detected early, allowing for safe and effective management. The progression from precancerous stages to cervical cancer itself can take a relatively long time, up to ten years, providing ample opportunity for detection and timely intervention (R et al., 2017).

Frequency of cervical cancer screening can help women of childbearing age (WUS) detect cervical cancer early. Based on the data collected, it is evident that WUS who underwent screening for the first time had all negative results, while those screened two or more times had 11 respondents with positive results each. Upon further analysis, among the 22 respondents with positive results from screening two or more times, certain characteristics of WUS influenced these outcomes, as identified through questionnaire interviews.

Among these characteristics, WUS who married before 20 years of age, had more than three children, experienced their first coitus before 20 years of age, had more than one sexual partner, and used regular soap or factory-produced vaginal cleansers for vaginal rinsing were found to be significantly associated with positive screening results. Specifically, among the 14 WUS married before 20 years of age, 6 had positive results; among the 7 WUS with more than three children, 3 had positive results (42.9%); among the 14 WUS who had their first coitus before 20 years of age, 7 had positive results (50%); among the 2 WUS with more than one sexual partner, both had positive results (100%); and among the 44 WUS who used regular soap or factory-produced vaginal cleansers for aginal rinsing, 16 had positive results (36.3%). In conclusion, the frequency of cervical cancer screening aids WUS in early detection, not implying that screening frequency causes cervical cancer in WUS or that increased screening frequency leads to recovery from cervical cancer.

CONCLUSION

Based on the provided information: Among the 61 Women of Reproductive Age (WUS) who underwent cervical cancer screening at the Community Health Center of Makassar District:

1. 31 respondents (50.8%) underwent screening for the first time.
2. 18 respondents (29.5%) underwent screening ≥2 times.
3. 12 respondents (19.7%) underwent screening ≥3 times. Out of the 61 WUS who underwent cervical cancer screening:
4. 22 respondents (36.1%) received a positive screening result.

5. 39 respondents (63.9%) received a negative screening result.

These statistics provide insights into the frequency of screening among WUS and the outcomes of those screenings at the mentioned health center in Makassar District.

Cervical Cancer Screening Frequency is associated with Initial Cervical Cancer Detection Outcomes.

This study has certain limitations that can serve as groundwork for future research with different study designs and methods, focusing on identifying the factors most associated with early detection outcomes of cervical cancer. This is crucial because cervical cancer occurrence is influenced by various factors beyond just screening frequency.

For educational institutions, the findings of this research are expected to enhance the knowledge of midwifery students regarding the significance of cervical cancer screening and add to the references available in their libraries.

For Women of Childbearing Age (WUS), it is encouraged to utilize healthcare facilities and services to reduce the incidence of cervical cancer, particularly through regular annual screening at health centers, clinics, or other healthcare facilities.

For the research site, such as healthcare providers at the Community Health Center of Makasar District.

REFERENCES

Afwina, H. T. (2017). *Gambaran Kepercayaan Kesehatan Wanita Usia Subur (Wus) Dalam Deteksi Dini Kanker Serviks Menggunakan Metode Iva Di Wilayah Kerja*. April.

Chasanah, M., Udiyono, A., Saraswati, L. D., & Suwandono, A. (2017). Gambaran faktor-faktor kejadian lesi prakanker leher rahim di Puskesmas Candiroto, Kabupaten Temanggung. *Jurnal Kesehatan Masyarakat (e-Journal)*, *5*(April), 58–63.

Enggoa, F., Dewi, R., Kesehatan, P., Kesehatan, K., & Kebidanan, J. (2017). *Faktor-faktor yang mempengaruhi kejadian lesi pra kanker*. 39–45.

Juanda, D., & Kesuma, H. (2015). Pemeriksaan Metode IVA (Inspeksi Visual Asam Asetat) untuk Pencegahan Kanker Serviks. *Jurnal Kedokteran Dan Kesehatan*, *2*(2), 169–174.

Kebidanan, J., Kemenkes, P., & Cervical, T. S. (2017). Lesi Prakanker Leher Rahim Di Kota Denpasar. *Jurnal Infokes Apikes Citra Medika Surakarta*, *7*(2), 56–62.

Kemenkes RI, 2018. (2018). Profile Kesehatan Indonesia Tahun 2017. In *Ministry of Health Indonesia*. https://doi.org/10.1002/qj

Lubis, R. C. (2018). Faktor Risiko Yang Memengaruhi Kejadian Kanker Serviks Pada Wanita di Rumah Sakit Umum Daerah dr. Pringadi Kota Medan Tahun 2017. *Jurnal Kesehatan*.

Mannopo, I. J. (2016). Hubungan paritas dan usia ibu dengan kanker serviks di rsu prof. kandou manado tahun 2014. *Jurnal Skolastik Keperawatan*, *2*(1), 46–58.

Mulyati, S., Suwarsa, O., & Desy Arya, I. F. (2015). Pengaruh Media Film Terhadap Sikap Ibu Pada Deteksi Dini Kanker Serviks. *Jurnal Kesehatan Masyarakat*, *11*(1), 16. https://doi.org/10.15294/kemas.v11i1.3401

Nindrea, Ricvan, D. (2017). Prevalensi Dan Faktor Yang Mempengaruhi Lesi Pra Kanker Serviks Pada Wanita. *Jurnal Endurance*, *2*(1), 53. https://doi.org/10.22216/jen.v2i1.1538

Padauleng, N., Djannah, F., Prihatina, L. M., & Mataram, U. (2018). *Skrining kanker serviks pada wanita dengan faktor risiko di kota mataram. 1*, 1859–1867.

R, T. S. D., Aini, I., & Mardiyah, D. D. (2017). Hubungan Pengetahuan Dengan Prilaku Wanita Usia Subur

Tentang Deteksi Dini Kanker Serviks Di Desa Cukir Dusun Sumoyono Kecamatandiwek Kabupaten Jombang. *Midwifery Journal of STIKES Insan Cendekia Medika Jombang*, *14*(1), 29–38.