

# Pap Smear as A Cervical Cancer Screening in Women of Childbearing Age in 2020

Merlin Margreth Maelissa<sup>1\*</sup>, Halidah Rahawarin<sup>1</sup>, Nathalie Elischeva Kailola<sup>1</sup>, Vina Zakiah Latuconsina<sup>1</sup>, Ninik Ma'athia Sallatalohy<sup>1</sup>

<sup>1</sup>Faculty of Medicine, Pattimura University, Indonesia.

Received: August 3, 2022

Revised: October 2, 2022

Accepted: October 15, 2022

Published: October 31, 2022

Corresponding Author:

Merlin Margreth Maelisa

[maelissamerlin@gamil.com](mailto:maelissamerlin@gamil.com)

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DOI: [10.29303/jppipa.v8i4.2074](https://doi.org/10.29303/jppipa.v8i4.2074)

**Abstract:** Early detection through screening programs is one of the cervical cancer prevention strategies that can help reduce cervical cancer morbidity and mortality. One method of early detection is through Pap smear examination. This study aimed to determine the profile of pap smear results at the Nusaniwe Sub-District Health Center, Ambon City. This descriptive observational study with a cross-sectional design was conducted at Amahusu Health Center, Benteng Health Center, Waihaong Health Center, and Urimessing Health Center. Pap smear examination was performed on women of childbearing age who came for treatment at the Health Center. They had no contraindications for pap smear examination and the results of the nonreactive IgM and IgG Sars-CoV2 antibody tests. From the examination results, on a total of 38 samples, the average age of the sample was 36.89, with the youngest age being 24 years old and the oldest being 46 years old. The highest age group was >35 years (55.3%), and the most age at first sexual intercourse was in the > 20-year age group (68.4%). Then, the most parity status was the multiparous group (68.4%). Generally, the sample had never undergone cervical cancer screening, both VIA examination and previous pap smear examination (60% and 92.1%, respectively). The most pap smear results were inflammation with infectious organisms as much as 42.1%, followed by inflammation (39.5%), Negative for Intraepithelial Lesion or Malignancy (10.5%), Atypical Squamous Cells of Undetermined Significance (5.3%) and Low-Grade Squamous Intraepithelial Lesion (2.6%). The most infecting organisms were bacteria (21.1%).

**Keywords:** Pap smear; Cervical cancer; Reproduction

## Introduction

Cervical cancer is a type of cancer in women with the second highest incidence after breast cancer. Globocan data, International Agency for Research on Cancer (IARC) 2018, recorded 569,847 cases of cervical cancer worldwide with a mortality rate of 311,365 (Arbyn et al., 2020; Kombe Kombe et al., 2021). In Indonesia, cervical cancer ranks second after breast cancer, with an incidence of 17.2% and a mortality rate of 9.3 (Bray et al., 2018). Meanwhile, in Maluku Province, the prevalence of cervical cancer is 1.0%, with an estimated 824 patients in 2013.

Cervical cancer is generally found at an advanced stage (Pareja, 2022). The process of cervical cancer

carcinogenesis passes through several stages in the form of HPV acquisition, HPV persistence, and progression to cancer precursor lesions and invasion. Sexual activity is a risk factor for the spread of HPV infection, especially in those who change partners frequently. However, HPV acquisition may regress spontaneously (Hrudka et al., 2020). Therefore, persistent infection with carcinogenic HPV is required to reach the stage of progression. Progression to invasion occurs over a relatively long time and varies from individual to individual. Therefore, routine screening is needed to detect cervical cancer early.

The high rate of cervical cancer and the high mortality rate caused by cervical cancer makes us need preventive action against cervical cancer. Healthy sexual

## How to Cite:

Maelissa, M.M., Rahawarin, H., Kailola, N.E., Latuconsina, V.Z., & Sallatalohy, N.M. (2022). Pap Smear as A Cervical Cancer Screening in Women of Childbearing Age in 2020. *Jurnal Penelitian Pendidikan IPA*, 8(4), 1863-1867. <https://doi.org/10.29303/jppipa.v8i4.2074>

behavior and good screening are expected to reduce cervical cancer (Saunders et al., 2021). Previous studies have shown that laboratory parameters such as using neutrophil to lymphocyte ratio (NLR) can be a predictive value in determining cervical cancer malignancy with high sensitivity. However, screening efforts using histopathological examinations such as pap smears are more often used by developing communities (Prabawa et al., 2019). Even with screening, the public can know how the situation is so that if the results are positive, the community can take early therapy to improve the prognosis of cervical cancer.

The cervical cytology screening program, more popularly known as the Papanicolaou (Pap) smear, is very helpful in reducing the incidence of cervical cancer (Okunowo et al., 2018). Pap smear examination is not only helpful in detecting cervical cancer at a low stage but also practical for detecting precancerous lesions. Therefore, it can reduce cancer mortality and increase survival rates (Biobaku & Adesegun O Fatusi, 2015). Furthermore, in these precancerous lesions, easy and effective therapy can still be given to prevent the development of cervical malignancy.

Pap Smear is a screening method that is widely used for cervical cancer screening (Mabotja et al., 2021). A Pap smear takes a cytological sample from the cervix to diagnose cervical cancer. Pap smear examination is said to have accuracy in diagnosing up to 98% and has a specificity level of up to 93%. However, pap smears may still give false negative results, as previous studies have shown that this test can give a false negative probability of 5%-15% (Mastutik et al., 2015). In various studies, the accuracy of Pap smears in diagnosing cervical cancer varies, namely sensitivity up to 98%, positive predictive value + 80.2%, negative predictive value + 91.3%, and false favorable rates ranging from 3%-15%. For example, in Indonesia, several studies found that the sensitivity of the pap smear reached 96.2%, the positive predictive value was 62.5%, and the negative predictive value was 91.5% (Pradnyana et al., 2019).

Cervical cancer screening with Pap smear examination is used to obtain cervical cytological abnormality data. It includes normal smear data, inflammatory process, low-grade intraepithelial lesion (LSIL), high-grade intraepithelial lesion (HSIL), carcinoma in situ, and invasive carcinoma to obtain cervical abnormality data.

Screening for cervical cancer is crucial. It dramatically affects the prognosis of cervical cancer. A more accurate diagnosis and knowing the screening results are expected to reduce mortality from cervical cancer. It can be an earlier action for selecting the right therapy if cervical cancer is diagnosed (Tjindarbumi & Mangunkusumo, 2002). In addition, the incidence of cervical cancer abroad and in Indonesia constantly increases yearly (Endarti et al., 2015). There are not much

research data regarding the characteristics of Pap smear cytology as a screening test for cervical precancerous lesions reported in Indonesia, especially in Maluku. Based on the explanation described above, this study aimed to determine the profile of the Pap smear results as a cervical cancer screening in women of childbearing age in 2020 in Ambon.

We conducted this research at health centers in Nusaniwe Sub-District, Ambon City. The selection of Nusaniwe Sub-District as the research location because it is a sub-district in Ambon City with the second largest population after Sirimau Sub-District and has the second most prominent female population after Sirimau Sub-District.

### Method

This descriptive observational research with a cross-sectional design was carried out for several months. Pap smear sampling was carried out at Health Centers in Nusaniwe Sub-District, namely Amahusu Health Center, Benteng Health Center, Waihaong Health Center, and Urimessing Health Center. Meanwhile, the cytological examination of pap smear samples was carried out in collaboration with dr. Winny N. Leiwakabessy, Sp. PA, M. Kes.

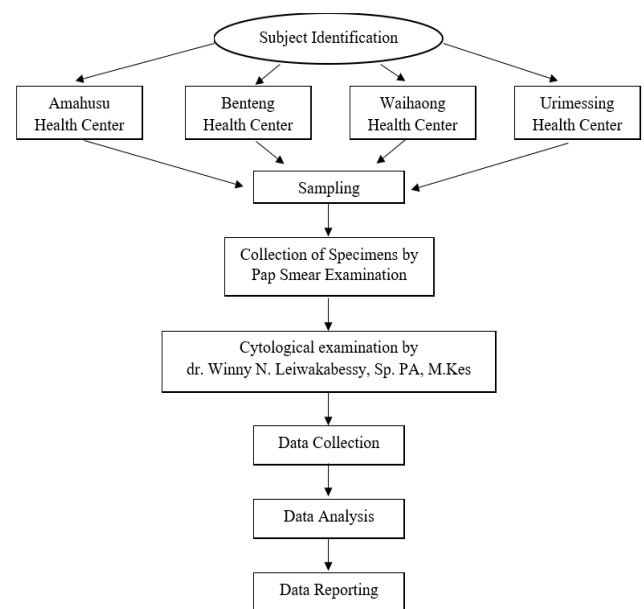


Figure 1. Research Method Scheme.

The population in this study were all women of childbearing age who came and received treatment at the Health Center in Nusaniwe Sub-District, Ambon City. Therefore, the sample of this research was women of childbearing age who came and sought treatment at the Health Center in Nusaniwe Sub-District who meet the inclusion criteria, namely women aged 14-49 years

and married, not coitus, not menstruating, not taking antibiotics or using vaginal medications within the last three days. Then, from the results of the non-reactive *IgM* dan *IgG SARS-CoV2* rapid antibody tests. Meanwhile, the exclusion criteria were women unwilling to participate in this study. Therefore, a pap smear was taken on participants who met the above criteria. Furthermore, the material from the Pap smear is subjected to a cytological examination in the anatomical pathology laboratory.

After data collection, data processing was performed using the Software Statistical Packages for Social Science (SPSS) for Windows version 23.0. Data analysis is in the form of univariate analysis, namely the presentation of data in the form of a frequency distribution table.

### Result and Discussion

The research sample consisted of several Health Center locations, namely Amahusu Health Center (8 samples), Benteng Health Center (12 samples), Waihaong Health Center (10 samples), and Urimessing Health Center (8 samples), with a total of 38 samples. The average age of the sample was 36.89, with the youngest age being 24 years old and the oldest being 46 years old. The characteristics of the research sample can be shown in Table 1.

**Table 1.** Characteristics of research samples

Characteristics	n	Percentage (%)
Ages	20-35 years	17 44.7
	> 35 years	21 55.3
Age at first sexual intercourse	< 20 years	12 31.6
	> 20 years	26 68.4
parity status	Nulipara	3 7.9
	Primipara	6 15.8
	Multipara	26 68.4
	Grande multipara	3 7.9
IVA history	Positive	2 5.3
	Negative	13 34.2
	Never	23 60.5
Pap smear history	Abnormal	0 0.0
	Normal	3 7.9
	Never	35 92.1

Where: n = total; IVA = acetic acid visual inspection

Based on the table above, the highest age was found in the age group > 35 years (55.3%). The age at first sexual intercourse was in the age group > 20 years (68.4%), and the highest parity status was in the multiparous group (68.4%). Most samples had never had an IVA or pap smear examination before (60% and 92.1%, respectively). The results of the Pap Smear examination can be shown in Table 2.

**Table 2.** Pap smear examination results

Pap Smear Examination Results	n	Percentage (%)
NILM	4	10.5
Inflammation	15	39.5
Inflammation with infectious organisms	16	42.1
ASCUS	2	5.3
LSIL	1	2.6
Total	38	100

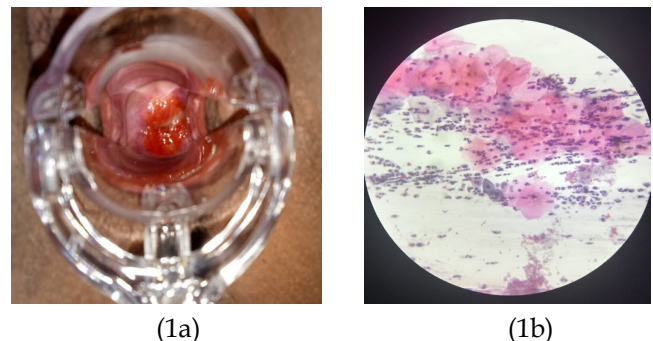
Where: n = total; NILM = Negative for Intraepithelial Lesion or Malignancy; ASCUS = Atypical Squamous Cells of Undeterminant Significans; LSIL = Low-Grade Squamous Intraepithelial Lesion

Based on Table 2, the examination results of most samples were inflammation with infectious organisms, as much as 42.1%. Details of the infection organisms are shown in Table 3.

**Table 3.** Infectious organisms

Infectious organisms	n	Percentage (%)
Bacteria	8	21.1
Fungi	6	15.8
Protozoa	1	2.6
Bacteria and fungi	1	2.6
Not found	22	57.9
Total	38	100

An overview of Pap Smear Collection and Examination Results can be shown in Figure 1.



**Figure 2.** a) Inspection of the cervix at the time of specimen collection. b) microscopy of cervical epithelial cells with inflammation

The results showed that the most characteristic of patients who underwent Pap smear screening were those aged > 35 years, namely 21 people (55.3%). According to the literature, it is said that cervical cancer is more common in people aged above 30 to 55 years. Therefore, it can be why many women aged > 35 have a Pap smear screening test. This study also showed that the highest parity was in the multiparous group, namely 26 people (68.4%). It is in line with several previous studies. According to the results of research in the Tenayan Raya Pekanbaru Sub-District, the number of

parity found in the study was mainly in the parity group of less than three but not nullipara (Ade et al., 2016). The results of other studies also found that the highest number in the parity group was less than three but not nullipara (Adawiyah & Wijayanti, 2021).

The characteristics of women who came and had a Pap smear mainly were those who had sexual intercourse for the first time at the age of more than 20 years, namely 26 people (68.4%), compared to those less than 20 years, namely 12 people (31.6%). Trauma to the cervix with immature epithelium will trigger rapid epithelial changes. Consequently, the younger a woman has sex, the faster the epithelial changes occur. Therefore, although most people who took part in the Pap smear examination were those who had had sex for more than 20 years, the awareness of having a Pap smear for those who had had sex for the first time in less than 20 years is good.

From the results of this study, it was also found that there were two patients with a history of positive IVA, and most of them had never had a Pap smear. A Pap smear is a screening procedure that costs a lot, especially for the lower middle class. Therefore, in this study, many patients want to take this examination.

Then most pap smear cytology screening results were in the inflammation group with organism infection in as many as 16 people (42.1%). These results follow the research conducted in Turkey in 2010, where that study also found the number stated with the results of Reactive cellular changes due to inflammation was the highest with a percentage of 67.2% (Mehmetoglu et al., 2010). In another study conducted at Tanah Kali Kewall Health Center and Mawadah Mojokerto Hospital in 2015, there was a slight difference where the highest number was in the Negative for Intraepithelial Lesion or Malignancy group with a percentage of 86.4% (Mastutik et al., 2015). Meanwhile, the most organisms found were bacterial infections, namely eight people (21,1 %).

## Conclusion

Based on this study, the characteristics of the sample were age group > 35 years (55.3%). The samples' age at first sexual intercourse in the age group > 20 years (68.4%) and parity status was highest in the multiparous group (68.4%). Most samples had never had an IVA or pap smear examination before (60% and 92.1%, respectively). The results of cervical cytology examination were mostly inflammation with organism infection as much as 42.1% and the most organisms were bacteria as much as 21.1%.

## Acknowledgements

This research team was funded by PNBP 2020 funds from the Faculty of Medicine, Pattimura University, Ambon.

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