Indonesian Journal of Community Engagement
Jurnal Pengabdian kepada Masyarakat
Vol. 11, No. 1, March 2025, Page. 51-57
DOI: http://doi.org/10.22146/jpkm.99065

Reducing Women's Cancer Rates: Early Detection of Breast Cancer and Cervical Cancer Through Self-Breast Exams (SADARI) and Pap Smears in Pinrang Regency, South Sulawesi

Rina Masadah[1], Berti Julian Nelwan[1], Jonathan Ham[1]*, Siska Putri Wulandari Raharja[1], Steffy Rebecca Gosal[1], Syahrul Rauf[2]

[1]Department of Pathology Anatomy, Faculty of Medicine, Universitas Hasanuddin, Makassar, Indonesia
[2]Department of Obstetric and Gynecology, Faculty of Medicine, Universitas Hasanuddin, Makassar, Indonesia

Submitted: August 09th 2024; Revised: December 06th 2024; Accepted: December 24th 2024

Keywords:
Breast cancer
Cervical cancer
Health education
Pap smear
SADARI

Abstract Breast and cervical cancer constitute the two most prevalent cancer types globally, with a disproportionately high mortality rate among women. While cervical cancer ranks eighth in terms of incidence, it remains a significant public health concern. A common challenge is the community's delay in seeking healthcare attributed to a dearth of information, consequently leading to delayed treatment. The Pinrang Regency Health Department and the Family Empowerment and Welfare Team (TP-PKK) of South Sulawesi identified a high incidence of breast and cervical cancer among women in the Pinrang region. A primary obstacle to addressing this issue is the absence of public awareness regarding breast and cervical cancer, including early warning signs, symptoms, and associated risks. This problem is compounded by the district's lack of an anatomical pathology specialist, hindering public education efforts and diagnostic capabilities. The objective of this activity was to enhance awareness of early detection for these two gynecological cancers in order to reduce mortality and morbidity rates associated with cancer. The method comprised an educational session on breast and cervical cancer, practicing SADARI, attended by 145 participants, followed by Pap smear tests for 45 volunteers. Program effectiveness was evaluated through pretest and posttest. A Wilcoxon signed-rank test was conducted to compare pretest and posttest scores. The results revealed a highly significant increase in scores p = 0.000 (p<0.005), suggesting that the educational program was successful in improving participants' knowledge. A significant proportion of participants (57.8%) reported undergoing a Pap smear for the first time, highlighting the need for enhanced awareness and knowledge-sharing efforts regarding early detection of cervical cancer. The Pinrang Regency Health Department and TP-PKK provided essential support and participation. The Institute for Research and Community Service (LPPM) funds this community service project. The project was executed under contract number 0031/UN.4.22/PM.01.01.2024.

1. INTRODUCTION

Every woman is at high risk of developing cancer, whether it be breast cancer or cervical cancer. Breast cancer is a malignancy originating from the cells of the breast, while cervical cancer is a malignancy originating from the epithelium of the cervix. According to Globocan (2021), breast cancer is the most commonly diagnosed malignancy among Indonesian women, accounting for 30,8% of all female cancers, or approximately 65,858 new cases in 2020 (Globocan, 2021). Although the incidence of breast cancer is high, Globocan (2021) data also revealed a 5-year prevalence of 201,143 cases. Moreover, according to Mills (2024), the 10-year survival rate for breast cancer patients

ISSN 2460-9447 (print), ISSN 2541-5883 (online)
*Corresponding author: Jonathan Ham
Department of Pathology Anatomy, Faculty of Medicine, Universitas Hasanuddin, Rappocini Raya 181B, Makassar, 90222, Indonesia
Email: jonathanhampatologi@gmail.com

can reach up to 80% of cases.

According to Globocan (2021), cervical cancer ranks eighth among all types of cancer and fourth among all cancers in women, with approximately 604,000 new cases worldwide each year. Cervical cancer is the second most common cancer among women globally, after breast cancer. In Indonesia, cervical cancer ranks first, with an estimated 36,633 cases, and 65% of patients are in advanced stages (Globocan, 2021; Sung et al., 2021).

Breast cancer incidence increases rapidly after the age of 30. Seventy-five percent of breast carcinomas are found in women over 50 years old and 5% in those aged 40. However, breast cancer can develop at any age, from childhood to old age. Breast cancer in men accounts for only 1% of cases compared to women. Generally, breast cancer patients seek clinical care when signs and symptoms worsen, often due to a lack of information about early detection, especially among women in rural areas. Cervical cancer incidence increases rapidly after the age of 30, with a peak age of 45-54 years among multiparous women.

Efforts to conduct screenings and share knowledge for early detection of cervical and breast cancer in South Sulawesi until 2018 were still considerably low compared to the national target, reaching only 5.08% while the national target was 7.34% (Pangribowo, 2019). Through the Ministry of Health, the Indonesian government has issued a series of policies since 2015 to increase the coverage of early detection for breast and cervical cancer (Kementerian Kesehatan Republik Indonesia, 2015). As academics focused on gynecological cancer, we deem it necessary to support this government program to reduce the mortality and morbidity rates caused by breast and cervical cancer in Indonesia, especially in Pinrang Regency, South Sulawesi.

The knowledge sharing focused on introducing methods for early breast and cervical cancer detection. This included teaching women how to perform self-breast examinations (SBEs) to detect breast tumors, as well as the importance of Pap smears for early detection of cervical cancer.

The Self Breast Examination (SBE) procedure is simple and can be performed independently at home. Women are encouraged to perform SBE once a month, starting on the 10th day of their menstrual cycle. SBE involves a series of simple yet systematic steps. First, observe the shape and size of the breasts in front of a mirror with arms relaxed at the sides. Next, repeat the observation with arms raised above the head and then with hands placed on the hips. Gently press the left nipple while raising the left arm above the head, checking for any discharge, and then repeat this step on the right nipple. Using the fingertips, systematically palpate the entire breast area in circular, radial, zigzag, up-down, or left-right motions. Additionally, gently press the area between the breast and the armpit as well as the region between the breast and the breastbone. Carefully note any changes in breast shape, size, or position, assess symmetry, and look for skin abnormalities such as dimpling (resembling an orange peel), nipple or breast lesions, abnormal lumps, or unusual nipple discharge (Husna & Fahlevi, 2020; Park et al., 2022).

The Pap smear remains the most accurate method for early detection of cervical cancer. Pap smears can detect precancerous cell abnormalities at an early stage. However, in Indonesia, particularly in South Sulawesi, healthcare access is limited, and screening programs are scarce or nonexistent, leading to late-stage diagnoses of cervical cancer and low survival rates. Therefore, it remains a leading cause of death among women. Hence, women must undergo regular pap smears (Inturrisi et al., 2024; Wulandari et al., 2022).

It is hoped that through this educational program, the community will become more proactive in maintaining breast and cervical health and in recognizing the early signs of breast and cervical cancer. Increased awareness is expected to reduce the mortality rate from breast and cervical cancer and provide more significant support for individuals battling these diseases.

2. METHOD

The health education program was conducted at the PKK Building of Pinrang Regency, South Sulawesi Province. The event was held on July 6. The participants of the health education were residents of Pinrang Regency. The community service activities employed methods such as health education, interactive consultation, practicing SADARI, quizzes, and Pap smear examinations.

The health education materials were designed to be concise, easy to understand, and delivered in simple language. The health education materials covered the following topics: 1) introduction to breast and cervical cancer; 2) risk factors associated with these diseases; 3) signs and symptoms; 4) prevention options; and 5) treatment options. Besides, the tools and materials used during the health education session: 1) engaging, informative, and simple PowerPoint slides; 2) video demonstrating the Self-Breast Examination (SBE); 3) breast and cervical banners; 4) pap smear Kit.

This breast and cervical cancer awareness campaign, including Pap smear screening, aims to revitalize the government's program promoting the importance of early detection of these diseases. To assess the effectiveness of the campaign, we will utilize pretest and posttest evaluations. A significant increase in posttest scores compared to pretest scores will serve as a key indicator of success. After participating, participants were expected to gain a deeper understanding of breast and cervical cancer and acquire the skill of the self-breast examination, which will benefit both themselves and their communities. Evaluation of success was assessed through pretest and posttest.

3. RESULT AND DISCUSSION

A community service activity on Breast and Cervical Cancer Awareness was conducted on Saturday, July 6, 2024, at the PKK Building, Pinrang Regency, South Sulawesi. This event was attended by 145 participants

from the women of PKK, the civil servants' wives association, community health workers, and the military wives association. The proceedings began with participants' registration, followed by the inaugural ceremony and a welcoming remark from Dr. Dyah Puspita Dewi, M.Kes, the Head of the Pinrang District Health Department. Also in attendance was the representative of the Bupati and the Chairperson of the Pinrang District PKK Mobilizing Team, Dr. Uswatun Hasanah, S.Sos, M.Pd. (Figure 1). Subsequently, a 10-minute pretest questionnaire was administered. The pretest comprised basic questions pertaining to the forthcoming health education materials. Its objective was to gauge the participants' prior knowledge and to serve as a baseline for evaluating the success of the health education program.

Figure 1 . The Head of the Pinrang Regency PKK mobilizing team, Dr. Uswatun Hasanah, S.Sos., M.Pd., officially opened the event with a brief address, underscoring the importance of PKK's role in community health

The esteemed Dr. dr presented a comprehensive health education session. Rina Masadah, M.Phil., Sp.PA(K). (Figure 2) The presentation was both systematic and engaging, addressing the following topics:

1. The session commenced with an overview of breast and cervical cancer. Participants were informed that breast and cervical cancers are prevalent diseases in the current era. Hence, early detection, prevention, and appropriate treatment were emphasized.

2. The session delved into the risk factors contributing to the development of breast and cervical cancer. Participants gained an understanding of the population segments at higher risk of these diseases. It was highlighted that while a family history of these cancers is a risk factor, lifestyle, and environmental factors also play a significant role.

3. The session focused on the signs and symptoms associated with breast and cervical cancer. Participants were educated on how to identify the physical manifestations of these diseases. Visual aids depicting breast and cervical abnormalities were utilized to enhance understanding.

4. In the event of any detected breast or cervical abnormalities, subsequent confirmation through breast and cervical examinations at a primary healthcare facility is advised. This process will involve a detailed medical history, family history, and clinical assessment. Further diagnostic procedures, including breast ultrasound and biopsy, may be necessary for definitive diagnosis of breast and cervical cancer.

Figure 2 . Education health session: (a) Breast cancer and cervical cancer presentation by Dr. dr. Rina Masadah, M.Phil., Sp.PA(K); (b) Demonstration of Self-Breast Examination (SADARI) Techniques

Following the presentation, an interactive question-and-answer session was facilitated. Participants demonstrated keen interest in the speaker's responses. A posttest was then administered, and participants scheduled for Pap smears were escorted to the examination room. The event culminated in a group photograph with the speaker, organizing committee, and attendees.

This community service initiative's efficacy can be assessed qualitatively and quantitatively. Following the health education session, participants significantly increased their knowledge regarding breast and cervical cancer. The direct guidance from the expert has empowered participants to disseminate this information to their social networks. Pretest and posttest questionnaires were administered to objectively evaluate the impact of the program. Of the 145 participants, a total of 145 completed both assessments (Figure 3).

Entering the practical SADARI session, the expert found that most participants had a basic understanding of SADARI, including the importance of regular self-examination. However, some participants demonstrated

misconceptions about the optimal timing and technique for performing SADARI. Some performed unsystematic approaches, leading to missed areas during the check. Many participants were unaware of specific changes to look for, such as lumps, bumps, changes in skin texture, or nipple discharge.

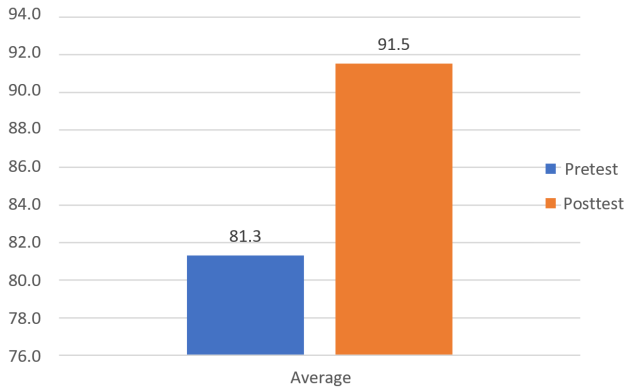

Figure 3 . Comparison of average pretest and posttest results (0-100)

When the expert demonstrated the SADARI technique step-by-step, most participants expressed positive attitudes towards SBE and recognized its importance in early breast cancer detection. However, some participants reported feeling anxious or embarrassed about performing SADARI. Many participants cited a lack of time as a major barrier to regular SADARI. Some participants reported forgetting to perform SADARI regularly.

Based on the findings of this qualitative assessment, the following recommendations are proposed:

1. Enhanced Education: A comprehensive educational program should be developed to demonstrate the physical techniques of self-breast examination (SBE) and emphasize the specific changes women should be vigilant about.

2. Building Confidence: the expert reassured women that SADARI can be conducted efficiently if a systematic approach is followed. We provided educational booklets to help individuals conduct self-examinations more easily at home.

3. Implementing Reminder Systems: A reminder system, such as mobile phone notifications, should be implemented, ideally timed to coincide with the 10th day of the menstrual cycle.

By addressing these factors, we can empower women to proactively manage their breast health and increase the likelihood of early breast cancer detection.

The pretest and posttest data have a normal distribution, so we used the Wilcoxon test (non-parametric). Thus, we can see the difference in pretest and posttest scores.

Table 1 . Analysis of posttest and pretest scores using the Wilcoxon test (Wilcoxon test $p^a < 0.005$)

	N	p^a
Posttest < Pretest	9	0.000
Posttest > Pretest	95	
Posttest = Pretest	41	
Total	**145**	

Table 1 shows that out of the participants who attended the breast cancer education and completed the SADARI behavior questionnaire, 95 had higher posttest scores than their pretest scores. This was measured using the Wilcoxon signed-rank test (non-parametric) with a significance level of $p = 0.000$ ($p<0.005$), indicating a significant increase in knowledge. It is hoped that they can increase their knowledge and can be applied in daily life regarding SADARI behavior.

Table 2 . Analysis of pap smear participants by parity

Parity	Participants	Percentage	Valid Percent
Nulliparity	4	8.9%	8.9%
Primiparity	4	8.9%	8.9%
Multiparity	37	82.2%	82.2%
Total	**45**	**100%**	**100%**

Of the 145 participants, 45 volunteers met the inclusion criteria for undergoing a Pap smear examination. The Pap smear examinations were conducted by trained medical personnel in accordance with standard operating procedures. A total of 82.2% of participants had a history of high parity (Table 2), and 42.2% of these had never undergone a Pap smear test previously (Table 3).

The Pap smear results presented in Figure 4 revealed that a significant majority (97.56%) of the participants had non-specific chronic vaginitis and inflammation. A smaller proportion (2.44%) had specific chronic inflammation.

Breast cancer is a disease characterized by the abnormal and uncontrolled growth of cells in the breast tissue, leading to the development of tumors (Shidqi et al., 2022).

Risk factors closely associated with an increased incidence of breast cancer include age >50 years, family history, genetics (germline mutations in the BRCA1, BRCA2, ATM, or TP53 genes), previous history of breast disease, history of menstruation <12 years or late menarche >55 years, reproductive history (nulliparity and not breastfeeding), hormonal factors, obesity, alcohol consumption, radiation history, and environmental factors (Fournier et al., 2005; Icanervilia et al., 2023; Tan, 2024).

Table 3 . Analysis of pap smear participants by pap smear history

History of previous pap smear test	Participants	Percentage	Valid Percent
Yes	19	42.2%	42.2%
No	26	57.8%	57.8%
Total	**45**	**100%**	**100%**

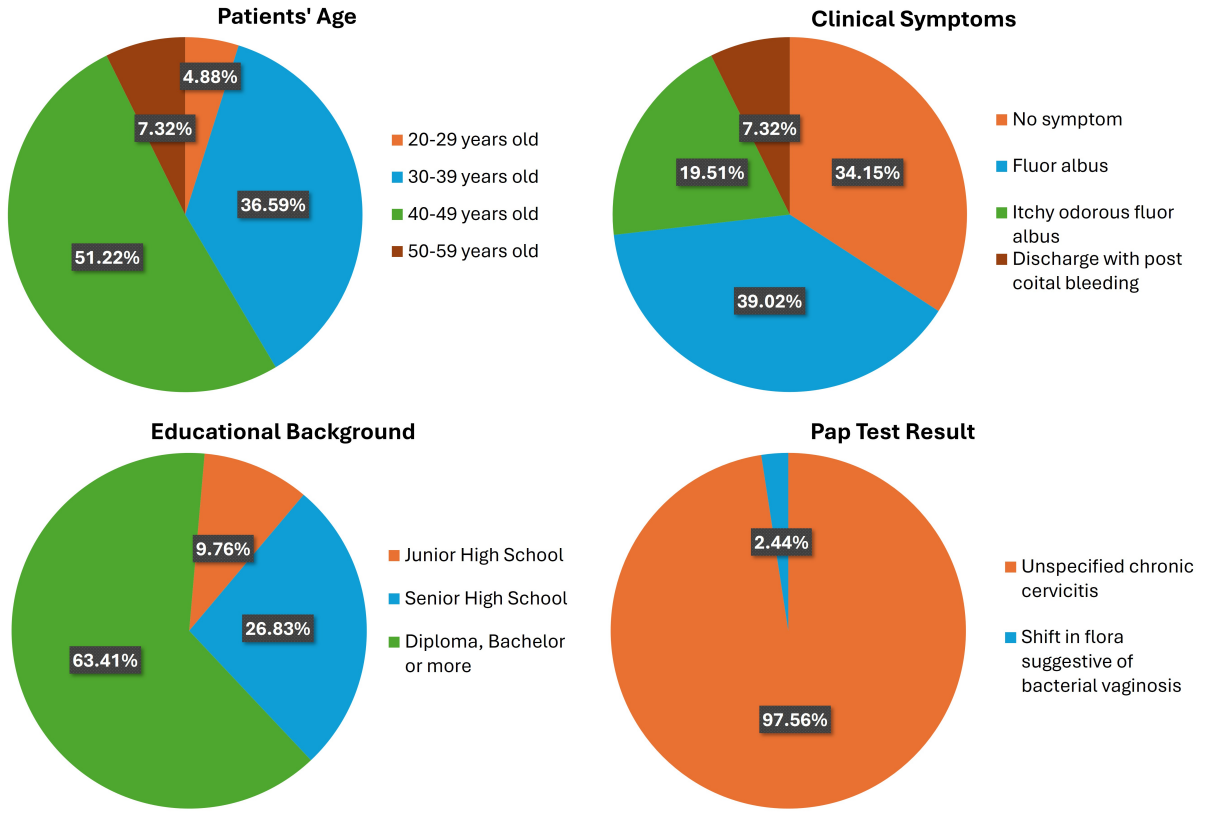

Figure 4 . Demographic data and pap smear results

The occurrence of a disease, as well as the availability of early detection and treatment in a country, can influence the mortality rate of breast cancer. Early diagnosis and treatment of cancer can significantly reduce the mortality rate. Breast self-examination (SADARI) is the easiest way to detect abnormalities in the size, texture, and shape of the breasts. In developing countries where health facility access has been limited, this examination can also help in the early detection of breast cancer (Dadzi & Adam, 2019; Galesha, 2022; Shidqi et al., 2022).

Cervical cancer develops in the cervix, originating from the epithelial or outer surface layer of the cervix. Cervical cancer is mostly caused by the Human Papillomavirus (HPV) infection. Human papillomavirus is a virus that infects the skin and mucous membranes of humans. Approximately 99.7% of cervical cancers are caused by the Human Papillomavirus (HPV) (Icanervilia et al., 2023; Zhang et al., 2020). In addition to Human Papillomavirus (HPV), other risk factors, including exposure to mutagens, hormonal imbalances, tobacco use, multiple sexual partners, and a history of drug administration and therapy, have been implicated in the pathogenesis of cervical cancer. Cervical cancer has become a significant health issue in Indonesia due to the high mortality rate each year. Therefore, to increase awareness of early detection methods such as pap smears, prevent delayed diagnosis, and reduce mortality rates (Mills, 2024; Novalia, 2023).

As a follow-up to the community service program, participants will be provided with pocketbooks and certificates containing the materials covered during the program. This will serve as a valuable resource for future reference and independent study.

There was a total enrollment of 45 participants in the pap smear screening. The age distribution revealed that 27 participants were over 40 years, and 18 were below 40 years old. In terms of parity, 37 participants had a history of multiple parity, four had a history of one parity, and another four had null parity (Table 2). Regarding previous Pap smear history, 19 participants had undergone the test before, whereas 26 had no prior history (Table 3). Consistent with previous research in Ambon, where 92.1% of participants had no prior experience with Pap smears and results primarily showed chronic inflammation or NILM (Maelissa et al., 2022), the current study among participants in Pinrang Regency identified a similar lack of awareness regarding cervical cancer screening. Nevertheless, the data suggests a slightly higher level of familiarity with IVA tests and Pap smear examinations among Pinrang residents, as evidenced by the 42.2% of residents who reported having previously undergone pap smears.

A limitation of this program was the significant number of participants who did not meet the criteria for Pap smear screening. Many participants reported being menstruating or having engaged in sexual intercourse within the previous two days which precluded them from receiving the Pap test.

4. CONCLUSION

This activity was carried out successfully, fostering enthusiasm among participants and demonstrating a

continued need for education and awareness regarding early breast and cervical cancer detection. To further enhance the impact of future initiatives, we recommend the following: 1) develop educational materials and programs that are tailored to the specific needs and cultural contexts of the target population; 2) collaborate with local health organizations and community leaders (PKK Mobilizing Team and District Health Department) to strengthen outreach efforts and mobilize community resources; 3) conduct regular evaluations to assess the effectiveness of the program and identify areas for improvement. By implementing these recommendations, we can continue to empower individuals to take control of their health and reduce the burden of breast and cervical cancer.

ACKNOWLEDGMENT

We would like to express our sincere gratitude to the Regent of Pinrang Regency, Mr. Ahmadi Akil, SE., MM, the Head of the Pinrang Regency Health Department, Drg. Dyah Puspita Dewi, M.Kes, and the Chairperson of the Pinrang Regency PKK Mobilizing Team, Mrs. Dr. Uswatun Hasanah, S.Sos, M.Pd, as well as the South Sulawesi Province, for their support and facilitation of this event. This event was also made possible by the organizing committee from the Department of Anatomical Pathology, Faculty of Medicine, Hasanuddin University, in collaboration with the Makassar Branch of the Indonesian Association of Pathological Anatomists (PDSPA).

CONFLICT OF INTERESTS

The authors declare there are no conflicts of interest.

REFERENCES

Dadzi, R., & Adam, A. (2019). Assessment of knowledge and practice of breast self-examination among reproductive age women in Akatsi South District of Volta Region of Ghana. *Plos One*. https://doi.org/10.1371/journal.pone.0226925

Fournier, A., Berrino, F., Riboli, E., Avenel, V., & Clavel-Chapelon, F. (2005). Breast cancer risk in relation to different types of hormone replacement therapy in the E3N-EPIC cohort. *International Journal of Cancer, 114*(3), 448–454. https://doi.org/10.1002/ijc.20710

Galesha, P. (2022). SADARI untuk deteksi dini kanker payudara. *Kemenkes RI*.

Globocan. (2021). International agency for research on cancer. *WHO Chronicle, 23*(7), 323–326.

Husna, A., & Fahlevi, M. I. (2020). Implementation of SADARI in the early detection of breast cancer in young women high school of West Aceh Regency. *J-Kesmas: Jurnal Fakultas Kesehatan Masyarakat (The Indonesian Journal of Public Health), 7*(1), 51. https://doi.org/10.35308/j-kesmas.v7i1.1919

Icanervilia, A. V., Choridah, L., Van Asselt, A. D. I., Vervoort, J. P. M., Postma, M. J., Rengganis, A. A., & Kardinah, K. (2023). Early detection of breast cancer in Indonesia: Barriers identified in a qualitative study. *Asian Pacific Journal of Cancer Prevention, 24*(8), 2749–2755. https://doi.org/10.31557/APJCP.2023.24.8.2749

Inturrisi, F., de Sanjosé, S., Desai, K. T., Dagnall, C., Egemen, D., Befano, B., Rodriguez, A. C., Jeronimo, J. A., Zuna, R. E., Hoffman, A., Nozzari, F. S., Walker, J. L., Perkins, R. B., Wentzensen, N., Palefsky, J. M., & Schiffman, M. (2024). A rapid HPV typing assay to support global cervical cancer screening and risk-based management: A cross-sectional study. *International Journal of Cancer, 154*(2), 241–250. https://doi.org/10.1002/ijc.34698

Kementerian Kesehatan Republik Indonesia. (2015). *Peraturan Menteri Kesehatan Republik Indonesia Nomor 34 Tahun 2015 tentang penanggulangan kanker payudara dan kanker leher rahim*. Kementerian Kesehatan Republik Indonesia. https://peraturan.bpk.go.id/Details/116060/permenkes-no-34-tahun-2015

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

Mills, A. M. (2024). *WHO classification of tumours online 5th edition (S. Herrington (ed.); 5th edition)*. World Health Organization. https://tumourclassification.iarc.who.int/chaptercontent/34/21

Novalia, V. (2023). Kanker serviks. *GALENICAL: Jurnal Kedokteran Dan Kesehatan Mahasiswa Malikussaleh, 2*(1), 45–56. https://doi.org/10.29103/jkkmm.v2i1.10134

Pangribowo, S. (2019). *Infodatin beban kanker di Indonesia*. Kementerian Kesehatan RI.

Park, M., Kim, D., Ko, S., Kim, A., Mo, K., & Yoon, H. (2022). Breast cancer metastasis: Mechanisms and therapeutic implications. *International Journal of Molecular Sciences, 23*(12). https://doi.org/10.3390/ijms23126806

Shidqi, Z. N., Saraswati, L. D., Kusariana, N., Sutiningsih, D., & Udiyono, A. (2022). Faktor-faktor keterlambatan diagnosis kanker pada pasien kanker payudara: Systematic review. *Jurnal Epidemiologi Kesehatan Komunitas, 7*(2), 471–481. https://doi.org/10.14710/jekk.v7i2.14911

Sung, H., Ferlay, J., Siegel, R. L., Laversanne, M., Soerjomataram, I., Jemal, A., & Bray, F. (2021). Global cancer statistics 2020: GLOBOCAN estimates of

incidence and mortality worldwide for 36 cancers in 185 countries. *CA: A Cancer Journal for Clinicians, 71*(3), 209–249. hhttps://doi.org/10.3322/caac.21660

Tan, P. H. (2024). WHO classification of tumours online. In I. A. Cree (Ed.), *World Health Organization (5th edition)*. World Health Organization. https://tumourclassification.iarc.who.int/chaptercontent/32/1

Wulandari, E., Gunadji, Y. A., Rambu, A., Melkianus, R., Gabriel, G. K. D. M., Saubaki, I., Yudith, M., Sherly, A. S. K. D., & Ratih, I. D. A. R. A. M. (2022). Keengganan Wanita Usia Subur (WUS) melakukan pap smear tinjauan teori health belief model. *Journal of Health Promotion and Service Management, 1*(1), 19–27.

Zhang, S., Xu, H., Zhang, L., & Qiao, Y. (2020). Cervical cancer: Epidemiology, risk factors and screening. *Chinese Journal of Cancer Research, 32*(6), 720–728. https://doi.org/10.21147/j.issn.1000-9604.2020.06.05