

## THE EFFECT OF PENDEKAR AUDIOVISUAL EDUCATION ON RISK LIFESTYLE OF BREAST CANCER

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### ABSTRAK

Kanker payudara sebagai penyebab kematian utama akibat kanker pada wanita, merupakan kanker dengan jumlah terbanyak di Indonesia. Data Globocan tahun 2020, dari total 396.914 kasus baru kanker di Indonesia, sebanyak 68.858 kasus (16,6%) merupakan kasus baru kanker payudara. Salah satu upaya yang dapat dilakukan untuk mencegah penyakit kanker payudara adalah melalui edukasi kesehatan dalam bentuk digital berbasis audio visual yang terbukti dapat menambah pengetahuan kelompok masyarakat rentan. Tujuan dari penelitian ini adalah menganalisis Pengaruh Edukasi PENDEKAR Terhadap Pola Hidup Kelompok Beresiko Kanker Payudara. Penelitian ini merupakan penelitian kuantitatif dengan desain *quasy eksperimen melalui pendekatan pre-posttest non control group*. Populasi dalam penelitian ini adalah seluruh wanita di wilayah kerja Puskesmas Limo. Teknik pengambilan sampel dalam penelitian ini yaitu *purposive sampling*, dengan kriteria inklusi, berjenis kelamin perempuan, berusia lebih dari 18 tahun, dapat membaca dan menulis, dan bersedia menjadi responden. Perhitungan sampel dilakukan dengan rumus estimasi proporsi Lemeshow dan diperoleh total sampel 54 responden. Instrumen pengumpulan data yang digunakan yaitu berupa kuesioner. Teknik analisis univariat dan analisis bivariat dengan dependent t-test. Hasil penelitian didapatkan rerata pola hidup beresiko sebelum intervensi adalah 22.59 (SD = 4.007) dan setelah diberikan intervensi, rerata pola hidup beresiko adalah 20.76 (SD = 3.791). Dari hasil uji statistik, dapat disimpulkan bahwa ada perbedaan antara pola hidup sebelum dan setelah diberikan intervensi edukasi PENDEKAR (*p-value* = 0.001;  $\alpha$  0.05).

Kata Kunci : PENDEKAR, Pola Hidup Beresiko, Kanker Payudara

### ABSTRACT

Breast cancer, the main cause of cancer deaths in women, is the cancer with the largest number in Indonesia. Globocan data for 2020, of the total 396,914 new cases of cancer in Indonesia, 68,858 cases (16.6%) were new cases of breast cancer. One effort that can be made to prevent breast cancer is through health education in audio-visual-based digital form which has been proven to increase the knowledge of vulnerable community groups. The aim of this research is to analyze the influence of PENDEKAR education on the lifestyle of groups at risk of breast cancer. This research is quantitative research with a quasi-experimental design using a non-control group pre-posttest approach. The population in this study were all women in the Limo Health Center working area. The sampling technique in this research was purposive sampling, with inclusion criteria, female gender, over 18 years old, able to read and write, and willing to be a respondent. The sample calculation was carried out using the Lemeshow proportion estimation formula and a total sample of 54 respondents was obtained. The data collection instrument used was a questionnaire. Univariate analysis techniques and bivariate analysis with dependent t-test. The research results showed that the mean risky lifestyle before the intervention was 22.59 (SD = 4.007) and after the intervention was given, the mean risky lifestyle was 20.76 (SD = 3.791). From the results of statistical tests, it can be concluded that there is a difference between lifestyle patterns before and after being given the PENDEKAR educational intervention (*p-value* = 0.001;  $\alpha$  0.05).

*Keywords* : Breast Cancer ; PENDEKAR; Risk lifestyle

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## INTRODUCTION

Breast cancer is currently one of the most frequently diagnosed cancers. It is the 5th cause of death from all types of cancer, with an estimated number of 2.3 million new cases worldwide, according to Globocan 2020 data. Deaths due to breast cancer are more frequently reported (incidence rate approximately 88% higher) in transition countries (Melanesia, West Africa, Polynesia and the Caribbean) than in transition countries (Australia/New Zealand, Western Europe, North). America, and Northern Europe) (Khalis et al. 2019). Meanwhile, in Indonesia, breast cancer ranks first in terms of the highest number of cancers and is one of the first contributors to death due to cancer.

Breast cancer is a malignancy of breast tissue. Malignancy occurs when cells in the breast tissue begin to grow out of control. Changes in normal cells to malignant through the processes of initiation, promotion and progression. Initiation occurs when a carcinogen damages deoxyribonucleic acid (DNA). Carcinogens cause changes in cell structure and function. The promotion stage involves repeated exposure to agents that cause cell damage. This genetic damage causes malignancy. Progressive means the cells become very malignant and invasive and spread to other parts of the body (Black & Hawks, 2014; Smelzer & Bare, 2008). Breast cancer is heterogeneous in its pathological characteristics, some cases show slow growth with a good prognosis, but other cases are more aggressive (Tao, Shi, Lu, Song, Zhang & Zhao, 2015). The number of new cases of breast cancer reached 68,858 cases (16.6%) out of a total of 396,914 new cases of cancer in Indonesia. Meanwhile, the number of deaths reached more than 22,000 cases.

There are two risk factors for breast cancer, namely factors that can be modified and factors that cannot be modified. Factors that can be modified include hormonal therapy, physical activity, obesity, alcohol consumption, smoking, vitamin supplement insufficiency, fast food consumption, exposure to chemicals, and carcinogenic drinks. Meanwhile, factors that cannot be modified include gender, age, family history of the same disease, genetic mutations, ethnicity, pregnancy and breastfeeding patterns, menstrual periods and menopause, breast tissue density, history of breast cancer, breast tumors, and radiation exposure (Łukasiewicz, S.; Czeczelewski, M.; Forma, A.; Baj, J.; Sitarz, R.; Stanisławek 2021). Several procedures such as general preventive behavior as well as screening programs are essential to minimize the possible incidence rate of breast cancer and implementation of early treatment. One prevention that can be made to prevent breast cancer is through health education. Health education in audiovisual-based digital form has been proven to increase the knowledge of vulnerable community groups to adopt healthy lifestyles and carry out early detection independently so as to prevent the risk of breast cancer, especially in vulnerable groups such as patients with a family history of cancer (Brief & Check 2019).

The high rate of breast cancer in Indonesia is a priority for handling by the government as stated in the National Cancer Action Plan 2022-2026. The role of a specialist nurse (advanced practice nurse) is a clinician, educator, advocate, counselor, administrator and researcher. Apart from being a clinician, the role of nurses in patients with comorbid diseases is as educators, researchers and advocates. Nurses should try to find effective educational media for the prevention and early detection of breast cancer so that people's healthy lifestyles improve and avoid carcinogens that cause cancer. In a preliminary study conducted by researchers in the Limo Health Center Work Area, information was obtained that 2 out of 10 health volunteer had a history of tumors and breast cancer. Health cadres said that in the local work area, health information regarding breast cancer

had never been obtained before. Pusdatin data for 2019 showed that the West Java region ranks 5th lowest for the percentage of screening and early detection of breast cancer out of 34 provinces throughout Indonesia. The aim of this research was used to prove that there is influence between lifestyle patterns before and after being given the PENDEKAR educational intervention.

## RESEARCH METHODS

This research is quantitative research with a quasi-experimental design using a non-control group pre-posttest approach. In this research, we will prove that there is influence between lifestyle patterns before and after being given the PENDEKAR educational intervention on the lifestyle of a group at risk of breast cancer for 40 days. The population in this study were all women in the Limo Health Center working area. The sampling technique in this research was purposive sampling, with inclusion criteria, female gender, over 18 years old, able to read and write, and willing to be a respondent. Meanwhile, the exclusion criteria were patients who have been diagnosed with breast cancer. The sample calculation was carried out using the Lemeshow proportion estimation formula, and a total sample of 54 respondents was obtained. The data collection instrument used was a questionnaire. The questionnaire, consisted of 30 questions, 8 stands for the number of parts including in this questionnaire, was used for this research: One part was based on demographic and another part was based on lifestyle of the participants. The questionnaire consist of characteristics including age, education, occupation, family history of cancer, hormonal therapy. Apart from that, to see the lifestyle, the Lifestyle Questionnaire for groups at risk of cancer was used which was adopted from The Cancer Association of South Africa: Lifestyle Risk Assessment Tool for cancer and The American Institute for Cancer Research: Cancer Health Check, R-value > 0.361 and Cronbach's alpha 0.610. The data has been collected and analyzed through univariate analysis and bivariate analysis with a dependent T-test.

## RESULTS AND DISCUSSION

Table 1. Frequency Distribution of Respondents based on Education, Length of Breast Milk (ASI), Age at First Menstruation, and Lifestyle at Risk of Breast Cancer.

No	Variable	Frequency		Total	
		N	%	N	%
1	Education				
	1. Higher Education (Diploma, Bachelor)	24	44.4		
	2. Senior High School		50	54	100
	3. Junior High School	2	3.7		
	4. Elementary School	1	1.8		
2	Length of Breastfeeding				
	1. Not giving breastmilk	5	9.2		
	2. > 2 years	15	27.7	54	100
	3. 1 - 2 years	18	33.3		
	4. <1 year	16	29.6		
3	Age at First Menstruation				
	1. 9-10 years	27	50		
	2. 11-12 years	6	11.1	54	100
	3. 13-14 years	16	29.6		
	4. > 14 years	5	9.2		
4	Risk Lifestyle of Breast Cancer				
	Pre intervention	0	0	54	100
	1. No risk ( $\leq 9$ )	14	25.9		
	2. Low risk (10-19)	38	70.4		
	2. Medium risk (20-29)	2	3.7		
	3. High risk ( $\geq 30$ )				
	Post intervention	0	0	54	100

1. No risk ( $\leq 9$ )	23	42.6
2. Low risk (10-19)	29	53.7
2. Medium risk (20-29)	2	3.7
3. High risk ( $\geq 30$ )		

As presented in Table 1, the majority of respondents had a high school education level, namely 27 people (50%). A total of 18 people (33.3%) had a history of giving breast milk for 1-2 years. Most respondents, 27 people (50%), experienced their first menstruation at the age of 9-10 years. In addition, before the intervention, most of the 38 respondents (70.4%) had a lifestyle that was at moderate risk for breast cancer. Meanwhile, after the intervention, respondents who had a lifestyle at moderate risk for breast cancer decreased to 29 people (53.7%).

The cause of breast cancer is not yet known with certainty. The main factor is suppressor gene mutations. The gene mutation categories determining breast cancer risk are divided into 3: highly penetrance, intermediate penetrance and low penetrance gene mutations. The Breast Cancer Susceptibility Gene (BRCA) is a high penetrance gene (16-25% inherited in the mammary gland). There are 2 types of BRCA, namely BRCA-1 and BRCA-2, which are sensitive to genetic changes in breast and ovarian cancer. Another gene linked to breast cancer is hereditary breast ovarian cancer (HBOC). Hereditary factors are considered the main factor that can trigger cancer (Desen, 2011).

Other trigger factors include age, history of early menarche, late menopause, benign breast disease, radiation exposure, and lifestyle (American Cancer Society; 2016; Black & Hawks, 2014; Desen, 2011). Delays in giving birth and the number of deliveries can increase the risk of breast cancer. A history of early menarche and number of deliveries are indicators of an increase in the hormone estrogen which can trigger cell proliferation. Lifestyles such as smoking and eating foods containing nitrosamines or drinks containing potassium benzoate are considered to trigger cancer. The tar content found in cigarettes, nitrosamines found in seafood and potassium benzoate found in preservative drinks, are considered highly carcinogenic substances (Tao et al, 2015).

The research results showed that the average body weight of the respondents was 58.64 kg, which is classified as overweight. Research conducted by (Dehesh et al., 2023) states that there is a significant relationship between breast cancer and obesity. The chance of developing breast cancer increases in postmenopausal women who are obese. Obesity not only increases the likelihood of breast cancer, but also has a significant impact on the disease progression process. Obese women with breast cancer are more susceptible to developing larger tumors, more likely to become resistant to hormone treatment, and have a greater incidence of metastasis.

Women can reduce the risk of breast cancer by maintaining a healthy body weight, reducing alcohol consumption, increasing physical activity and breastfeeding (Madrigano 2008). Carrying out further physical activity will reduce the risk of breast cancer by 14% (Kyu et al. 2016). Consuming lots of citrus fruit can also reduce the risk of breast cancer by 10% (Song and Bae 2013). Moreover, that consuming omega-3 unsaturated fats can also reduce the risk of breast cancer (Nindrea et al. 2019). Additionally, consuming foods containing soy is also known to slightly reduce the risk of breast cancer (Wu et al. 2008).

Several procedures such as general preventive behavior as well as screening programs are essential to minimize the possible incidence rate of breast cancer and implementation of early treatment. One prevention that can be made to prevent breast cancer is through health education.

Table 2. Average distribution of respondents based on age, weight and height.

No	Variable	Mean $\pm$ SD	Min-Maks
1	Age	33.87 $\pm$ 13.88	20-76

2	Weight	58.64±24.25	37-90
3	Height	156.48±78.20	147-171

As shown in Table 2, the mean age of respondents was 33.87 years (SD = 13.88) with a minimum age of 20 and a maximum of 76 years. The mean body weight of respondents was 58.64 kg (SD = 24.25) with a minimum weight of 37 kg and a maximum of 90 kg. The mean height of respondents was 156.48 cm (SD = 78.20) with a minimum height of 147 and a maximum of 171.

Table 3. Distribution of Mean Differences in Breast Cancer Risk Lifestyles before and after providing PENDEKAR education (n=54)

Variable	n	Mean± SD	SE	p value
Risk Lifestyle of Breast Cancer				
1. Pre intervention	54	22.59± 4.007	0.545	0.001*
2. Post Intervention		20.76± 3.791	0.516	

\*meaning at  $\alpha$  5%

As shown in Table 3, the mean risky lifestyle before the intervention was 22.59 (SD = 4.007) and after the intervention, the mean risky lifestyle was 20.76 (SD = 3,791). From the results of statistical tests, it could be concluded that there was a difference between lifestyle patterns before and after being given the PENDEKAR educational intervention (p-value = 0.001;  $\alpha$  0.05).

According to Chen, et al (2022), based on HLI scores, a healthier lifestyle was associated with a lower incidence of breast, pancreatic, lung, colorectal, postmenopausal endometrial, and kidney cancer among women. The relationships and linearity vary. Implementing healthy lifestyle behaviors can be a public health priority in reducing the risk of cancer in women (Chen et al., 2021).

Health education in audiovisual-based digital form has been proven to increase the knowledge of vulnerable community groups to adopt healthy lifestyles and carry out early detection independently so as to prevent the risk of breast cancer, especially in vulnerable groups such as patients with a family history of cancer (Brief & Check 2019). In the study by Khalis et al (2019), the average Healthy Lifestyle Index (HLI) score of respondents in the intervention group was 8.1 ( $\pm$ 1.1) and in the control group was 9.0 ( $\pm$ 0.9) with  $p < 0.01$ . After being given information about breast cancer in the intervention group, it was found that there was an increase in the HLI score of one point in respondents with a percentage of 56% (95% CI: 39-68%), 49% (95% CI: 30-63%), and 59% (95% CI: 40-72%) there was a reduced risk of breast cancer in all women, premenopausal and postmenopausal (Khalis et al. 2019). Apart from that, in research by Ghosn, et al (2020), the average age of respondents was 62.4 years and the respondents' body mass index (BMI) was 24.3 kg/m<sup>2</sup>. Respondents with the highest healthy lifestyle score (HLS) were 0.38 times less likely to suffer from breast cancer than the control group (OR: 0.62; 95% CI: 0.40, 0.93, Ptrend = 0.01). The results of the analysis based on menopausal status showed that postmenopausal women with the highest HLS had a 44% lower chance of developing breast cancer compared with those with the lowest score (OR: 0.56; 95% CI: 0.36, 0.88, P trend = 0.004). In addition, it was also found that respondents with the highest Healthy Eating Index scores had a 46% lower chance of developing breast cancer than respondents with the lowest scores (OR: 0.54; 95% CI: 0.35, 0.82, Ptrend <0.001). No other significant association was found between physical activity and smoking and the risk of developing breast cancer (Ghosn et al. 2020).

## CONCLUSION



Most of the respondents had a high school education level, namely 27 people (50%). A total of 18 people (33.3%) had a history of giving breast milk for 1-2 years. Most respondents, 27 people (50%), experienced their first menstruation at the age of 9-10 years. In addition, before the intervention, most of the 38 respondents (70.4%) had a lifestyle that was at moderate risk for breast cancer. Meanwhile, after the intervention, respondents who had a lifestyle at moderate risk for breast cancer decreased to 29 people (53.7%). From the results of statistical tests, it can be concluded that there is a difference between lifestyle patterns before and after being given the PENDEKAR educational intervention (p-value = 0.001;  $\alpha$  0.05).

## SUGGESTIONS

Nurses and families can provide PENDEKAR health education to all women of productive age. Patients can use the PENDEKAR health education media to improve their health status and prevent breast cancer. For better results, further research and development are needed on the PENDEKAR application so that it can be more easily used by the wider community.

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