

Creation of Cervical Cancer Risk Factor Score Card in order to Know the Risk Score for Cervical Cancer in Women of Reproductive Age by Conducting Self-Assessment

A'im Matun Nadhiroh¹, Budi Santoso², Suhatno³, Windhu Purnomo⁴, Heru Santoso Wahito Nugroho⁵

¹Student of Doctoral Program, Faculty of Public Health, Universitas Airlangga / Researcher, Undergraduate Midwifery Study Program, Faculty of Health Sciences, Universitas Muhammadiyah Surabaya, Indonesia,

²Researcher, Faculty of Medicine, Universitas Airlangga, Indonesia, ³Researcher, RSUD Dr. Soetomo Surabaya, Indonesia, ⁴Researcher, Faculty of Public Health, Universitas Airlangga, Indonesia, ⁵Researcher, Department of Health, Poltekkes Kemenkes Surabaya, Indonesia

Abstract

Introduction: Cervical cancer is the second most common malignancy among various cancers in the genitalia of women, and often occurs at reproductive age. **Purpose:** The purpose of this study is to create a cervical cancer risk factor score card in order to know the risk score for cervical cancer in women of reproductive age by conducting self-assessment. **Methods:** The design of this research was cross-sectional, with 81 patients as respondents. Data were collected through filling out a questionnaire, then analyzed using Mc Nemar Test and ROC curve. **Findings:** Obtained a cut-off point 11 with a sensitivity value of 93.8%, a specificity of 90.9%. The results of testing the validity of the score card obtained results with an accuracy value of 92.6%, with a significant value of 0.000, which means there was a relationship between the scorecard and the diagnosis of cervical cancer. **Conclusion:** The score card can be used as a self-assessment in the hope that it can increase women to perform early detection of cervical cancer

Keywords: cervical cancer, risk factors, score card, self-assessment

Introduction

Cervical cancer is the second most common malignancy among various cancers in the genitalia of women, and often occurs at reproductive age (15-44 years). Data on cervical cancer cases in the world are ranked number 3 most commonly in women, with an estimated 569,847 new cases and 311,365 deaths with a percentage of 85-90%, the majority of which occur in developing countries where resources are low or occur in people with low socioeconomic conditions ⁽¹⁾. In

Indonesia, 32,469 new cases of cervical cancer are found per year with a total death rate of 18,279 per year, which means that there are 50 Indonesian women who die every day from cervical cancer ⁽²⁾ and there is 1 woman diagnosed with cervical cancer every 1 hour ⁽³⁾. Most cases found in Indonesia are squamous cell carcinoma followed by adenocarcinoma ⁽⁴⁾.

East Java Province is one of the provinces in Indonesia with a high number of cervical cancer cases and is always increasing every year, namely in total of 21,313 ⁽⁵⁾. The cause of cervical cancer is the high-risk type oncogenic Human Papilloma Virus (HPV). The development of precancerous lesions is slow that in the precancerous stage and early-stage cancer does not cause symptoms, this is why nearly 80 percent of cases are found to be in an advanced stage and 94% of patients with advanced stages die within two years ^(6,7).

Corresponding Author:

A'im Matun Nadhiroh

E-mail: aim.matun.nadhiroh-2014@fkm.unair.ac.id

Address: Midwifery Undergraduate Study Program Building F 2nd Floor

University of Muhammadiyah Surabaya / Jl. Sutorejo No. 59 Dukuh Sutorejo, Kec. Mulyorejo Surabaya

The coverage of cervical cancer early detection checks in East Java is still low, namely 8.50%⁽³⁾, while in 2019 it was only 2.32%⁽⁸⁾. A visit to a new case at the One-Stop Oncology Poly (POSA) Dr. Soetomo Surabaya in 2015, found new cases of cervical cancer as many as 729 patients, 679 (93%) patients came with advanced stage conditions, cervical precancerous lesions as many as 55 (6%) patients. In 2016, the number of new cases of cervical cancer were 837 patients, 794 (95%) patients came in an advanced stage and cervical precancerous lesions were 32 (4%) patients⁽⁹⁾.

Screening or early detection of cervical cancer can be done with a Pap smear and IVA (visual inspection with acetic acid). This examination is very affordable in terms of cost, but not many women have cervical cancer screening. The government's target for women aged 30-50 years to screen for cervical cancer during 2007 to 2014 is 50 percent⁽¹⁰⁾. However, the coverage of early detection in Indonesia is still low, namely only 11 percent, with details of Pap smear examinations as much as 7% while IVA examinations is 4%⁽⁷⁾. The reasons for women not doing early cervical cancer screening are: feeling embarrassed, afraid of the screening results, lack of awareness, feeling unnecessary, low income, lazy, feeling no complaints and no support from their husbands⁽¹¹⁻¹⁵⁾. The purpose of this study is to create a cervical cancer risk factor score card in order to know the risk score for cervical cancer in women of reproductive age by conducting self-assessment.

Methods

This study was a continuation of research with the title Meta-analysis: score of risk factors for cervical precancerous lesions and cervical cancer⁽¹⁶⁾, then a trial was carried out and determined the cut-off point for cervical cancer risk factors which will later get the

risk category. The place of research at the One-Stop Oncology Poly (POSA) RSUD DR. Sutomo Surabaya for 1-3 months.

The population were women who suffered from cervical cancer and did not suffer from cervical cancer who came to visit POSA RSUD DR. Sutomo Surabaya. The sample size used the Lemeshow formula⁽¹⁷⁾ and also based on the results of Wiyono's research⁽¹⁸⁾, the value of $\pi = 0.741$, then the sample size were 37.5 women, rounded to 38 women, so the minimum sample for cervical cancer patients were 19 people and non-cervical cancer were 19 people. The study took a sample of 48 cervical cancer patients and 33 non-cervical cancer. The sampling technique was using purposive sampling method.

The variables in this study were: age of women, parity, socioeconomic, active smoking, history of partner circumcision, number of sexual partners, age at first sexual activity, hormonal contraception (PIL), IUD contraception, and history of pap smear examination. Retrieval and data collection was done using a questionnaire that has been compiled by the researcher. The categorical data obtained were presented descriptively in the form of frequencies and percentages^(19,20). Processing and data analysis to get the cut of point was done using the ROC curve and the Mc Nemar Test.

Findings

Table 1 illustrates the age distribution of women in both the cervical cancer and non-cervical cancer groups more often at >35 years (>86%). More than 60% of women with cervical cancer and non-cervical cancer were more in primary education (elementary school and junior high school), and more than 50% did not work or only as housewives in both groups.

Table 1. Distribution of Characteristics of Women in One-Stop Oncology Poly (POSA) Dr. Sutomo Surabaya

No	Characteristics	Category	Non-Cervical Cancer (n=33)		Cervical Cancer (n=48)	
			n	%	n	%
1.	Age	<20 yrs old	1	3.0	0	0.0
		21-34 yrs old	3	9.1	4	8.3
		>35 yrs old	29	87.9	44	91.7
2.	Education	Primary (ementary school, junior high school)	21	63.6	33	68.8
		Intermediate (senior high school)	4	12.1	12	25.0
		Higher (Diploma, Bachelor)	8	24.2	3	6.2
3.	Occupation	Unemployed (housewives)	19	57.6	28	58.3
		Employed	14	42.4	20	41.7

Table 2. Cross Tabulation of Cervical Cancer Risk with Diagnosis of Cervical Cancer in Women in One-Stop Oncology Poly (POSA) Dr. Sutomo Surabaya

No	Risk of Cervical Cancer	Diagnosis of Cervical Cancer				Total	
		Non-Cervical Cancer (n=33)		Cervical Cancer (n=48)			
		n	%	n	%	n	%
1.	Low Risk	30	90.9	3	6.2	33	100
2.	High Risk	3	9.1	45	93.8	48	100
Total		33	100	48	100	88	100

Based on Table 2, it shows that the majority of patients diagnosed with non-cervical cancer were 30 people (90.9%), while the majority of patients with a diagnosis of cervical cancer were 45 people (93.8%).

Determination of the cut of point as a risk classification using the ROC curve (Figure 1).

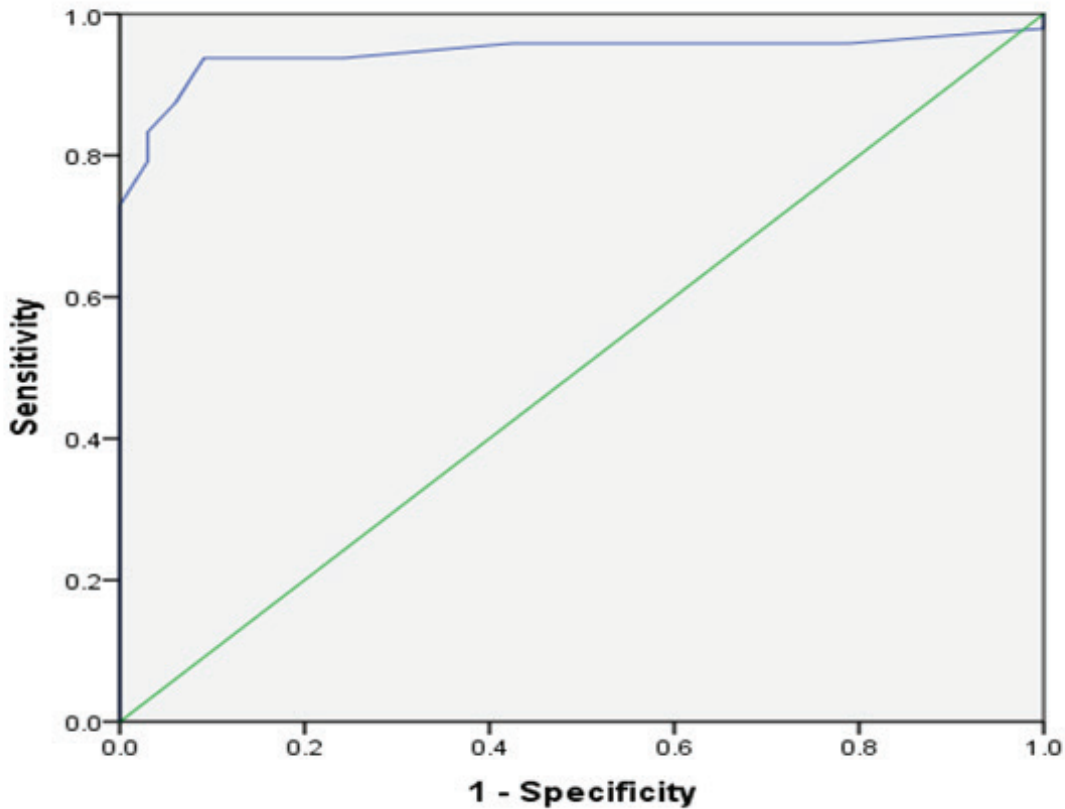


Figure 1. ROC Curve

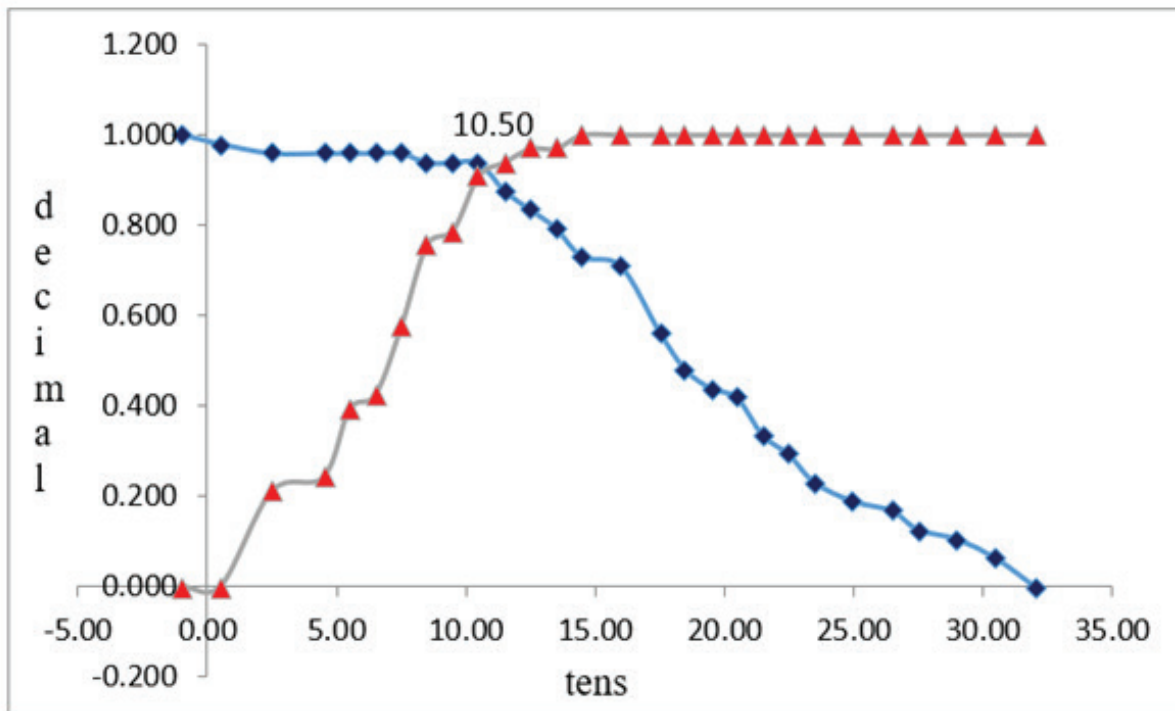


Figure 2. Cut-off Point of Risk Factor Score

Based on the results of the ROC curve, it was found that the cutoff point was 10.50 and by the researcher it was determined using the intersection point 11 which means that:

1. Women are said to have a low risk of cervical cancer if they have a score <11.

2. Women are said to be at high risk of cervical cancer if they have a score ≥ 11 .

After obtaining the results of the risk factor cutting point, it was then entered into the risk factor score card as in table 3. The score card is based on research conducted by Nadhiroh ⁽¹⁶⁾.

Table 3. Cervical Cancer Risk Factor Scorecard

CERVICAL CANCER OF RISK FACTOR SCORE CARD			
Name :			
Age :			
Address :			
Date :			
NO	RISK FACTOR	SCORE	RESULTS
1.	Female age >35 years	7	
2.	Family Income <UMK	6	
3.	Having given birth >5	3	
4.	Never Pap Smear	4	
5.	Spouses are not circumcised (Circumcision)	3	
6.	Active Smoking	6	
7.	Not Using IUD Contraceptives	1	
8.	Using PIL Contraception	5	
9.	Duration of PIL Contraceptive Use >5 years	5	
10.	Early Sexual Activity (<17 years)	4	
11.	Number of Sexual Partners > 1	9	
TOTAL SCORE			
Category	Low Risk	= If the total score <11	
	High Risk	= If the total score >11	
Follow-up	Low Risk	= Keep doing early detection of cervical cancer according to schedule and age.	
	High Risk	= Immediately perform a Pap-Smear and other supporting examinations to confirm the diagnosis of the disease	

Based on the cut-off point 11 using the ROC curve, the sensitivity value was 93.8%, and the specificity was 90.9%. With these criteria, the score card can be said to be accurate and valid for early detection of the risk of cervical cancer. The results of testing the validity of the score card obtained results with an accuracy value of 92.6%, with a significant value of 0.000, which means there is a relationship between the scorecard and the diagnosis of cervical cancer.

Discussion

Based on the results of the analysis in Table 3, 11 (eleven) risk factors were obtained, namely: age of women >35 years, having given birth to children >5, income <UMK, never having a pap smear, a partner who was not circumcised, smoking actively, not using intrauterine contraception device (IUD), using PIL contraception, duration of using PIL contraception >5 years, early sexual activity <17 years, and the number of sexual partners > 1. The score on risk factors had a value between 1 to 9, each woman assessed herself according to the conditions and criteria on the score then summed, after getting the total score then categorized whether the woman had a low risk or high risk of cervical cancer.

The scorecard trial was carried out at the One-Stop Oncology Poly (POSA) Dr. Sutomo Surabaya. The cutoff results using the ROC curve obtained results of 10.50 and by the researcher it was determined using the 11-cut point. The cut-off point was used to determine the threshold score for women whether they were categorized as low risk or high risk. Based on the results of the analysis, it was obtained a sensitivity value of 93.8% and a specificity of 90.9%, with these criteria, the score card can be said to be accurate and valid for early detection of the risk of cervical cancer and the accuracy value of 92.6% with a significant value of 0.000 which means there is a relationship of scorecard with cervical cancer diagnosis.

Based on the cut-off point value and the ROC curve value, this study produced two recommendations for women of childbearing age (WUS), namely the low-risk category and the high-risk category. In each category, recommendations were given for the next steps therefore women who were at high risk will get the right treatment. The recommendations for each category are as follows:

1. Low Risk (score <11) = Must still perform early detection of cervical cancer according to schedule and age.
2. High Risk (score >11) = Immediately perform a Pap-Smear and other supporting examinations to confirm the diagnosis of the disease.

Cervical cancer is a disease with a natural course that takes a long time, where the course of the disease from cervical precancerous lesions to cervical cancer takes a minimum of 3-17 years ⁽²¹⁾. Cervical cancer when found at an early stage, the ability to sustain life is higher, but it is also influenced by several factors, such as; the general condition of the patient, stage, histological characteristics of tumor cells, ability of the expert or treatment team, race, ethnicity and age ⁽²²⁾.

All women who are already sexually active are advised to undergo regular screening for early detection of cervical cancer according to their age and the results of previous examinations. By doing cervical cancer screening, abnormalities that occur in the vagina (cervix) can be detected early so that treatment can also be done immediately. Based on the American Cancer Society ⁽²³⁾, there are several recommendations for cervical cancer screening, namely: 1. Age less than 21 years, no recommendation; 2. Ages 21-29 years, undergo cytology screening every 3 years, if the test results are negative more than 2 times in a row; 3. Age 30-65 years, doing cytology and HPV tests every 5 years, while for cytology only every 3 years; 4. Age over 65 years, should not be screened if the results of screening in the last 20 years are negative and there is no history of CIN; 5. Women who have had a hysterectomy and no history of CIN should not be screened; 6. Women who have been vaccinated against HPV are advised to continue screening according to age.

Conclusion

The cut-off point for cervical cancer risk factors is 11, which means that it is said to be low risk if the woman has a score <11 and high risk if the woman gets a score >11. The score card can be used as a self-assessment in the hope that it can increase women to do early detection of cervical cancer.

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